SEQUENCE LISTING

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<120> rAAV-Guanylate Cyclase Compositions and Methods for Treating Leber's Congenital Amaurosis-1 (LCA1)

<130> 36689.309

<150> US 61/327,521
<151> 2010-04-23

<160> 18

<170> PatentIn version 3.5

<210> 1
<211> 1103
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<213> Homo sapiens

<400> 1

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1               5                  10                  15

Cys Gly Pro Ala Trp Trp Ala Pro Ser Leu Pro Arg Leu Pro Arg Ala
            20                  25                  30

Leu Pro Arg Leu Pro Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro
        35                  40                  45

Ala Leu Ser Ala Val Phe Thr Val Gly Val Leu Gly Pro Trp Ala Cys
    50                  55                  60

Asp Pro Ile Phe Ser Arg Ala Arg Pro Asp Leu Ala Ala Arg Leu Ala
65                  70                  75                  80

Ala Ala Arg Leu Asn Arg Asp Pro Gly Leu Ala Gly Gly Pro Arg Phe
                85                  90                  95

Glu Val Ala Leu Leu Pro Glu Pro Cys Arg Thr Pro Gly Ser Leu Gly
            100                 105                 110

Ala Val Ser Ser Ala Leu Ala Arg Val Ser Gly Leu Val Gly Pro Val
        115                 120                 125

Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Glu Glu Ala Gly
    130                 135                 140

Ile Ala Leu Val Pro Trp Gly Cys Pro Trp Thr Gln Ala Glu Gly Thr
145                 150                 155                 160

Thr Ala Pro Ala Val Thr Pro Ala Ala Asp Ala Leu Tyr Ala Leu Leu
                165                 170                 175
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Arg Ala Phe Gly Trp Ala Arg Val Ala Leu Val Thr Ala Pro Gln Asp
            180                 185                 190

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

Gly Leu Pro Val Ala Ser Val Thr Ser Met Glu Pro Leu Asp Leu Ser
    210                 215                 220

Gly Ala Arg Glu Ala Leu Arg Lys Val Arg Asp Gly Pro Arg Val Thr
225                 230                 235                 240

Ala Val Ile Met Val Met His Ser Val Leu Leu Gly Gly Glu Glu Gln
                245                 250                 255

Arg Tyr Leu Leu Glu Ala Ala Glu Glu Leu Gly Leu Thr Asp Gly Ser
            260                 265                 270

Leu Val Phe Leu Pro Phe Asp Thr Ile His Tyr Ala Leu Ser Pro Gly
        275                 280                 285

Pro Glu Ala Leu Ala Ala Leu Ala Asn Ser Ser Gln Leu Arg Arg Ala
    290                 295                 300

His Asp Ala Val Leu Thr Leu Thr Arg His Cys Pro Ser Glu Gly Ser
305                 310                 315                 320

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

Asp Leu Asn Leu Gln Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp
            340                 345                 350

Ala Val Phe Leu Leu Ala Arg Gly Val Ala Glu Ala Arg Ala Ala Ala
        355                 360                 365

Gly Gly Arg Trp Val Ser Gly Ala Ala Val Ala Arg His Ile Arg Asp
    370                 375                 380

Ala Gln Val Pro Gly Phe Cys Gly Asp Leu Gly Gly Asp Glu Glu Pro
385                 390                 395                 400

Pro Phe Val Leu Leu Asp Thr Asp Ala Ala Gly Asp Arg Leu Phe Ala
                405                 410                 415

Thr Tyr Met Leu Asp Pro Ala Arg Gly Ser Phe Leu Ser Ala Gly Thr
            420                 425                 430

Arg Met His Phe Pro Arg Gly Gly Ser Ala Pro Gly Pro Asp Pro Ser
        435                 440                 445
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Cys Trp Phe Asp Pro Asn Asn Ile Cys Gly Gly Gly Leu Glu Pro Gly
    450                 455                 460

Leu Val Phe Leu Gly Phe Leu Leu Val Val Gly Met Gly Leu Ala Gly
465                 470                 475                 480

Ala Phe Leu Ala His Tyr Val Arg His Arg Leu Leu His Met Gln Met
                485                 490                 495

Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Val Asp Asp Ile Thr Phe
            500                 505                 510

Leu His Pro His Gly Gly Thr Ser Arg Lys Val Ala Gln Gly Ser Arg
        515                 520                 525

Ser Ser Leu Gly Ala Arg Ser Met Ser Asp Ile Arg Ser Gly Pro Ser
    530                 535                 540

Gln His Leu Asp Ser Pro Asn Ile Gly Val Tyr Glu Gly Asp Arg Val
545                 550                 555                 560

Trp Leu Lys Lys Phe Pro Gly Asp Gln His Ile Ala Ile Arg Pro Ala
                565                 570                 575

Thr Lys Thr Ala Phe Ser Lys Leu Gln Glu Leu Arg His Glu Asn Val
            580                 585                 590

Ala Leu Tyr Leu Gly Leu Phe Leu Ala Arg Gly Ala Glu Gly Pro Ala
        595                 600                 605

Ala Leu Trp Glu Gly Asn Leu Ala Val Val Ser Glu His Cys Thr Arg
    610                 615                 620

Gly Ser Leu Gln Asp Leu Leu Ala Gln Arg Glu Ile Lys Leu Asp Trp
625                 630                 635                 640

Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Ile Arg Tyr
                645                 650                 655

Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn Cys
            660                 665                 670

Ile Val Asp Gly Arg Phe Val Leu Lys Ile Thr Asp His Gly His Gly
        675                 680                 685

Arg Leu Leu Glu Ala Gln Lys Val Leu Pro Glu Pro Pro Arg Ala Glu
    690                 695                 700

Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Ala Leu Glu
705                 710                 715                 720

Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Ala Ile Ile Met
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725 730 735

Gln Glu Val Val Cys Arg Ser Ala Pro Tyr Ala Met Leu Glu Leu Thr
740 745 750

Pro Glu Glu Val Val Gln Arg Val Arg Ser Pro Pro Pro Leu Cys Arg
755 760 765

Pro Leu Val Ser Met Asp Gln Ala Pro Val Glu Cys Ile Leu Leu Met
770 775 780

Lys Gln Cys Trp Ala Glu Gln Pro Glu Leu Arg Pro Ser Met Asp His
785 790 795 800

Thr Phe Asp Leu Phe Lys Asn Ile Asn Lys Gly Arg Lys Thr Asn Ile
805 810 815

Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser Asn Leu Glu
820 825 830

Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu Glu Lys Gln Lys
835 840 845

Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser Val Ala Glu Ala
850 855 860

Leu Lys Thr Gly Thr Pro Val Glu Pro Glu Tyr Phe Glu Gln Val Thr
865 870 875 880

Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser Ala Met Ser
885 890 895

Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr Thr Leu Phe
900 905 910

Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val Glu Thr Ile Gly
915 920 925

Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn Gly Gln Arg
930 935 940

His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile Leu Ser Ala Val
945 950 955 960

Gly Thr Phe Arg Met Arg His Met Pro Glu Val Pro Val Arg Ile Arg
965 970 975

Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val Gly Leu Thr
980 985 990

Met Pro Arg Tyr Cys Leu Phe Gly Asp Thr Val Asn Thr Ala Ser Arg
995 1000 1005

```
Met Glu  Ser Thr Gly Leu Pro  Tyr Arg Ile His Val  Asn Leu Ser
    1010                 1015                 1020

Thr Val  Gly Ile Leu Arg Ala  Leu Asp Ser Gly Tyr  Gln Val Glu
    1025                 1030                 1035

Leu Arg  Gly Arg Thr Glu Leu  Lys Gly Lys Gly Ala  Glu Asp Thr
    1040                 1045                 1050

Phe Trp  Leu Val Gly Arg Arg  Gly Phe Asn Lys Pro  Ile Pro Lys
    1055                 1060                 1065

Pro Pro  Asp Leu Gln Pro Gly  Ser Ser Asn His Gly  Ile Ser Leu
    1070                 1075                 1080

Gln Glu  Ile Pro Pro Glu Arg  Arg Arg Lys Leu Glu  Lys Ala Arg
    1085                 1090                 1095

Pro Gly  Gln Phe Ser
    1100
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<210> 2
<211> 1108
<212> PRT
<213> Mus musculus

<400> 2

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Met Ser Ala Trp Leu Leu Pro Ala Gly Gly Leu Pro Gly Ala Gly Phe
1               5                  10                  15

Cys Val Pro Ala Arg Gln Ser Pro Ser Ser Phe Ser Arg Val Leu Arg
            20                  25                  30

Trp Pro Arg Pro Gly Leu Pro Gly Leu Leu Leu Leu Leu Leu Leu Pro
        35                  40                  45

Ser Pro Ser Ala Leu Ser Ala Val Phe Lys Val Gly Val Leu Gly Pro
    50                  55                  60

Trp Ala Cys Asp Pro Ile Phe Ala Arg Ala Arg Pro Asp Leu Ala Ala
65                  70                  75                  80

Arg Leu Ala Ala Asn Arg Leu Asn Arg Asp Phe Ala Leu Asp Gly Gly
                85                  90                  95

Pro Arg Phe Glu Val Ala Leu Leu Pro Glu Pro Cys Leu Thr Pro Gly
            100                 105                 110

Ser Leu Gly Ala Val Ser Ser Ala Leu Ser Arg Val Ser Gly Leu Val
        115                 120                 125
```

```
Gly Pro Val Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Gln
    130                 135                 140

Glu Ala Gly Val Ala Leu Val Pro Trp Gly Cys Pro Gly Thr Arg Ala
145                 150                 155                 160

Ala Gly Thr Thr Ala Pro Ala Val Thr Pro Ala Ala Asp Ala Leu Tyr
                165                 170                 175

Val Leu Leu Arg Ala Phe Arg Trp Ala Arg Val Ala Leu Ile Thr Ala
            180                 185                 190

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

Arg Ala Arg Gly Leu Pro Val Ala Leu Val Thr Ser Met Glu Thr Ser
    210                 215                 220

Asp Arg Ser Gly Ala Arg Glu Ala Leu Gly Arg Ile Arg Asp Gly Pro
225                 230                 235                 240

Arg Val Arg Val Val Ile Met Val Met His Ser Val Leu Leu Gly Gly
                245                 250                 255

Glu Glu Gln Arg Tyr Leu Leu Glu Ala Ala Glu Glu Leu Ala Leu Thr
            260                 265                 270

Asp Gly Ser Leu Val Phe Leu Pro Phe Asp Thr Leu His Tyr Ala Leu
        275                 280                 285

Ser Pro Gly Pro Glu Ala Leu Ala Ala Phe Val Asn Ser Ser Gln Leu
    290                 295                 300

Arg Arg Ala His Asp Ala Val Leu Thr Leu Thr Arg Arg Cys Pro Pro
305                 310                 315                 320

Gly Gly Ser Val Gln Asp Ser Leu Arg Arg Ala Gln Glu His Gln Glu
                325                 330                 335

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

Ile Tyr Asp Ala Val Phe Leu Leu Ala Gly Gly Val Lys Arg Ala Arg
        355                 360                 365

Thr Ala Val Gly Gly Gly Trp Val Ser Gly Ala Ser Val Ala Arg Gln
    370                 375                 380

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

Glu Glu Pro Ser Phe Val Leu Leu Asp Thr Asp Ala Ser Gly Glu Gln
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405 410 415

Leu Phe Ala Thr His Leu Leu Asp Pro Val Leu Gly Ser Leu Arg Ser
420 425 430

Ala Gly Thr Pro Met His Phe Pro Arg Gly Gly Pro Ala Pro Gly Pro
435 440 445

Asp Pro Ser Cys Trp Phe Asp Pro Asp Val Ile Cys Asn Gly Gly Val
450 455 460

Glu Pro Gly Leu Val Phe Val Gly Phe Leu Leu Val Ile Gly Met Gly
465 470 475 480

Leu Thr Gly Ala Phe Leu Ala His Tyr Leu Arg His Arg Leu Leu His
485 490 495

Met Gln Met Ala Ser Gly Pro Asn Lys Ile Ile Leu Thr Leu Glu Asp
500 505 510

Val Thr Phe Leu His Pro Pro Gly Gly Ser Ser Arg Lys Val Val Gln
515 520 525

Gly Ser Arg Ser Ser Leu Ala Thr Arg Ser Ala Ser Asp Ile Arg Ser
530 535 540

Val Pro Ser Gln Pro Gln Glu Ser Thr Asn Val Gly Leu Tyr Glu Gly
545 550 555 560

Asp Trp Val Trp Leu Lys Lys Phe Pro Gly Glu His His Met Ala Ile
565 570 575

Arg Pro Ala Thr Lys Thr Ala Phe Ser Lys Leu Arg Glu Leu Arg His
580 585 590

Glu Asn Val Ala Leu Tyr Leu Gly Leu Phe Leu Ala Gly Thr Ala Asp
595 600 605

Ser Pro Ala Thr Pro Gly Glu Gly Ile Leu Ala Val Val Ser Glu His
610 615 620

Cys Ala Arg Gly Ser Leu His Asp Leu Leu Ala Gln Arg Glu Ile Lys
625 630 635 640

Leu Asp Trp Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly
645 650 655

Met Arg Tyr Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser
660 665 670

Arg Asn Cys Val Val Asp Gly Arg Phe Val Leu Lys Val Thr Asp His
675 680 685

```
Gly His Gly Arg Leu Leu Glu Ala Gln Arg Val Leu Pro Glu Pro Pro
    690                 695                 700

Ser Ala Glu Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro
705                 710                 715                 720

Ser Leu Glu Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Ala
                725                 730                 735

Ile Ile Met Gln Glu Val Val Cys Arg Ser Thr Pro Tyr Ala Met Leu
            740                 745                 750

Glu Leu Thr Pro Glu Glu Val Ile Gln Arg Val Arg Ser Pro Pro Pro
        755                 760                 765

Leu Cys Arg Pro Leu Val Ser Met Asp Gln Ala Pro Met Glu Cys Ile
    770                 775                 780

Gln Leu Met Thr Gln Cys Trp Ala Glu His Pro Glu Leu Arg Pro Ser
785                 790                 795                 800

Met Asp Leu Thr Phe Asp Leu Phe Lys Ser Ile Asn Lys Gly Arg Lys
                805                 810                 815

Thr Asn Ile Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser
            820                 825                 830

Asn Leu Glu Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Gln Glu
        835                 840                 845

Lys Gln Lys Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser Val
    850                 855                 860

Ala Glu Ala Leu Lys Met Gly Thr Ser Val Glu Pro Glu Tyr Phe Glu
865                 870                 875                 880

Glu Val Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser
                885                 890                 895

Ala Met Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr
            900                 905                 910

Thr Leu Phe Asp Ala Ile Ile Gly Ala His Asp Val Tyr Lys Val Glu
        915                 920                 925

Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn
    930                 935                 940

Gly Gln Arg His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile Leu
945                 950                 955                 960
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```
Ser Ala Val Gly Ser Phe Arg Met Arg His Met Pro Glu Val Pro Val
                965                 970                 975

Arg Ile Arg Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val
            980                 985                 990

Gly Leu Thr Met Pro Arg Tyr Cys  Leu Phe Gly Asp Thr  Val Asn Thr
        995                 1000                1005

Ala Ser  Arg Met Glu Ser Thr  Gly Leu Pro Tyr Arg  Ile His Val
    1010                1015                1020

Asn Met  Ser Thr Val Arg Ile  Leu Arg Ala Leu Asp  Gln Gly Phe
    1025                1030                1035

Gln Met  Glu Cys Arg Gly Arg  Thr Glu Leu Lys Gly  Lys Gly Ile
    1040                1045                1050

Glu Asp  Thr Tyr Trp Leu Val  Gly Arg Leu Gly Phe  Asn Lys Pro
    1055                1060                1065

Ile Pro  Lys Pro Pro Asp Leu  Gln Pro Gly Ala Ser  Asn His Gly
    1070                1075                1080

Ile Ser  Leu Gln Glu Ile Pro  Pro Glu Arg Arg Lys  Lys Leu Glu
    1085                1090                1095

Lys Ala  Arg Pro Gly Gln Phe  Thr Gly Lys
    1100                1105
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<212> PRT
<213> Rattus norvegicus

<400> 3

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Met Ser Ala Trp Leu Leu Pro Ala Gly Gly Phe Pro Gly Ala Gly Phe
1               5                   10                  15

Cys Ile Pro Ala Trp Gln Ser Arg Ser Ser Leu Ser Arg Val Leu Arg
            20                  25                  30

Trp Pro Gly Pro Gly Leu Pro Gly Leu Leu Leu Leu Leu Leu Leu Pro
        35                  40                  45

Ser Pro Ser Ala Phe Ser Ala Val Phe Lys Val Gly Val Leu Gly Pro
    50                  55                  60

Trp Ala Cys Asp Pro Ile Phe Ala Arg Ala Arg Pro Asp Leu Ala Ala
65                  70                  75                  80

Arg Leu Ala Thr Asp Arg Leu Asn Arg Asp Leu Ala Leu Asp Gly Gly
```

```
                85                  90                  95

Pro Trp Phe Glu Val Thr Leu Leu Pro Glu Pro Cys Leu Thr Pro Gly
            100                 105                 110

Ser Leu Gly Ala Val Ser Ser Ala Leu Thr Arg Val Ser Gly Leu Val
        115                 120                 125

Gly Pro Val Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Gln
    130                 135                 140

Glu Ala Gly Val Ala Leu Val Pro Trp Gly Cys Pro Gly Thr Arg Ala
145                 150                 155                 160

Ala Gly Thr Thr Ala Pro Ala Val Thr Pro Ala Ala Asp Ala Leu Tyr
                165                 170                 175

Val Leu Leu Lys Ala Phe Arg Trp Ala Arg Val Ala Leu Ile Thr Ala
            180                 185                 190

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

Arg Ala Arg Gly Leu Pro Val Ala Leu Val Thr Ser Met Val Pro Ser
    210                 215                 220

Asp Leu Ser Gly Ala Arg Glu Ala Leu Arg Arg Ile Arg Asp Gly Pro
225                 230                 235                 240

Arg Val Arg Val Val Ile Met Val Met His Ser Val Leu Leu Gly Gly
                245                 250                 255

Glu Glu Gln Arg Tyr Leu Leu Glu Ala Ala Glu Glu Leu Gly Leu Thr
            260                 265                 270

Asp Gly Ser Leu Val Phe Leu Pro Phe Asp Thr Leu His Tyr Ala Leu
        275                 280                 285

Ser Pro Gly Pro Glu Ala Leu Ala Ala Phe Val Asn Ser Ser Lys Leu
    290                 295                 300

Arg Arg Ala His Asp Ala Val Leu Thr Leu Thr Arg Arg Cys Pro Pro
305                 310                 315                 320

Gly Gly Ser Val Gln Asp Ser Leu Arg Arg Ala Gln Glu His Gln Glu
                325                 330                 335

Leu Pro Leu Asp Leu Asp Leu Lys Gln Val Ser Pro Leu Phe Gly Thr
            340                 345                 350

Ile Tyr Asp Ala Val Phe Leu Leu Ala Gly Gly Val Thr Arg Ala Arg
        355                 360                 365
```

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Ala Ala Val Gly Gly Gly Trp Val Ser Gly Ala Ser Val Ala Arg Gln
    370                 375                 380

Met Arg Glu Ala Gln Val Phe Gly Phe Cys Gly Ile Leu Gly Arg Thr
385                 390                 395                 400

Glu Glu Pro Ser Phe Val Leu Leu Asp Thr Asp Ala Ala Gly Glu Arg
                405                 410                 415

Leu Phe Thr Thr His Leu Leu Asp Pro Val Leu Gly Ser Leu Arg Ser
            420                 425                 430

Ala Gly Thr Pro Val His Phe Pro Arg Gly Ala Pro Ala Pro Gly Pro
        435                 440                 445

Asp Pro Ser Cys Trp Phe Asp Pro Asp Val Ile Cys Asn Gly Gly Val
    450                 455                 460

Glu Pro Gly Leu Val Phe Val Gly Phe Leu Leu Val Ile Val Val Gly
465                 470                 475                 480

Leu Thr Gly Ala Phe Leu Ala His Tyr Leu Arg His Arg Leu Leu His
                485                 490                 495

Met Gln Met Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Leu Glu Asp
            500                 505                 510

Val Thr Phe Leu His Pro Gln Gly Gly Ser Ser Arg Lys Val Ala Gln
        515                 520                 525

Gly Ser Arg Ser Ser Leu Ala Thr Arg Ser Thr Ser Asp Ile Arg Ser
    530                 535                 540

Val Pro Ser Gln Pro Gln Glu Ser Thr Asn Ile Gly Leu Tyr Glu Gly
545                 550                 555                 560

Asp Trp Val Trp Leu Lys Lys Phe Pro Gly Glu His His Met Ala Ile
                565                 570                 575

Arg Pro Ala Thr Lys Met Ala Phe Ser Lys Leu Arg Glu Leu Arg His
            580                 585                 590

Glu Asn Val Ala Leu Tyr Leu Gly Leu Phe Leu Ala Gly Thr Ala Asp
        595                 600                 605

Ser Pro Ala Thr Pro Gly Glu Gly Ile Leu Ala Val Val Ser Glu His
    610                 615                 620

Cys Ala Arg Gly Ser Leu His Asp Leu Leu Ala Gln Arg Asp Ile Lys
625                 630                 635                 640
```

Leu Asp Trp Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly
645 650 655

Met Arg Tyr Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser
660 665 670

Arg Asn Cys Val Val Asp Gly Arg Phe Val Leu Lys Val Thr Asp His
675 680 685

Gly His Gly Arg Leu Leu Glu Ala Gln Arg Val Leu Pro Glu Pro Pro
690 695 700

Ser Ala Glu Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro
705 710 715 720

Ala Leu Glu Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Gly
725 730 735

Ile Ile Met Gln Glu Val Val Cys Arg Ser Thr Pro Tyr Ala Met Leu
740 745 750

Glu Leu Thr Pro Glu Glu Val Ile Gln Arg Val Arg Ser Pro Pro Pro
755 760 765

Leu Cys Arg Pro Leu Val Ser Met Asp Gln Ala Pro Met Glu Cys Ile
770 775 780

Gln Leu Met Ala Gln Cys Trp Ala Glu His Pro Glu Leu Arg Pro Ser
785 790 795 800

Met Asp Leu Thr Phe Asp Leu Phe Lys Gly Ile Asn Lys Gly Arg Lys
805 810 815

Thr Asn Ile Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser
820 825 830

Asn Leu Glu Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Gln Glu
835 840 845

Lys Gln Lys Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser Val
850 855 860

Ala Glu Ala Leu Lys Met Gly Thr Ser Val Glu Pro Glu Tyr Phe Glu
865 870 875 880

Glu Val Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser
885 890 895

Ala Met Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr
900 905 910

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Thr Leu Phe Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val Glu
        915                 920                 925

Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn
    930                 935                 940

Gly Gln Arg His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile Leu
945                 950                 955                 960

Ser Ala Val Gly Ser Phe Arg Met Arg His Met Pro Glu Val Pro Val
                965                 970                 975

Arg Ile Arg Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val
            980                 985                 990

Gly Leu Thr Met Pro Arg Tyr Cys  Leu Phe Gly Asp Thr  Val Asn Thr
        995                 1000                1005

Ala Ser  Arg Met Glu Ser Thr  Gly Leu Pro Tyr Arg  Ile His Val
    1010                1015                1020

Asn Met  Ser Thr Val Arg Ile  Leu Arg Ala Leu Asp  Gln Gly Phe
    1025                1030                1035

Gln Met  Glu Cys Arg Gly Arg  Thr Glu Leu Lys Gly  Lys Gly Val
    1040                1045                1050

Glu Asp  Thr Tyr Trp Leu Val  Gly Arg Val Gly Phe  Asn Lys Pro
    1055                1060                1065

Ile Pro  Lys Pro Pro Asp Leu  Gln Pro Gly Ala Ser  Asn His Gly
    1070                1075                1080

Ile Ser  Leu Gln Glu Ile Pro  Pro Glu Arg Arg Lys  Lys Leu Glu
    1085                1090                1095

Lys Ala  Arg Pro Gly Gln Phe  Thr Gly Lys
    1100                1105
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<211> 1110
<212> PRT
<213> Bos taurus

<400> 4

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Met Thr Ala Cys Thr Phe Leu Ala Gly Gly Leu Arg Asp Pro Gly Leu
1               5                   10                  15

Cys Ala Pro Thr Arg Trp Ser Pro Ser Pro Pro Gly Leu Pro Pro Ile
            20                  25                  30

Pro Pro Arg Pro Arg Leu Arg Leu Arg Pro Pro Leu Leu Leu Leu Leu
        35                  40                  45
```

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

Gly Pro Trp Ala Cys Asp Pro Ile Phe Ala Arg Ala Arg Pro Asp Leu
65                  70                  75                  80

Ala Ala Arg Leu Ala Ala Ser Arg Leu Asn His Ala Ala Ala Leu Glu
                85                  90                  95

Gly Gly Pro Arg Phe Glu Val Ala Leu Leu Pro Glu Pro Cys Arg Thr
            100                 105                 110

Pro Gly Ser Leu Gly Ala Val Ser Ser Ala Leu Thr Arg Val Ser Gly
        115                 120                 125

Leu Val Gly Pro Val Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu
    130                 135                 140

Ala Gln Glu Ala Gly Val Ala Leu Val Pro Trp Gly Cys Pro Gly Thr
145                 150                 155                 160

Arg Ala Ala Gly Thr Thr Ala Pro Val Val Thr Pro Ala Ala Asp Ala
                165                 170                 175

Leu Tyr Ala Leu Leu Arg Ala Phe Arg Trp Ala His Val Ala Leu Val
            180                 185                 190

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

Ala Leu Arg Ala Arg Gly Leu Pro Val Ala Leu Val Thr Ser Met Glu
    210                 215                 220

Pro Ser Asp Leu Ser Gly Ala Arg Glu Ala Leu Arg Arg Val Gln Asp
225                 230                 235                 240

Gly Pro Arg Val Arg Ala Val Ile Met Val Met His Ser Val Leu Leu
                245                 250                 255

Gly Gly Glu Glu Gln Arg Cys Leu Leu Glu Ala Ala Glu Glu Leu Gly
            260                 265                 270

Leu Ala Asp Gly Ser Leu Val Phe Leu Pro Phe Asp Thr Leu His Tyr
        275                 280                 285

Ala Leu Ser Pro Gly Pro Asp Ala Leu Ala Val Leu Ala Asn Ser Ser
    290                 295                 300

Gln Leu Arg Lys Ala His Asp Ala Val Leu Thr Leu Thr Arg His Cys
305                 310                 315                 320
```

```
Pro Leu Gly Gly Ser Val Arg Asp Ser Leu Arg Arg Ala Gln Glu His
                325                 330                 335

Arg Glu Leu Pro Leu Asp Leu Asn Leu Gln Gln Val Ser Pro Leu Phe
            340                 345                 350

Gly Thr Ile Tyr Asp Ser Val Phe Leu Leu Ala Gly Gly Val Ala Arg
        355                 360                 365

Ala Arg Val Ala Ala Gly Gly Gly Trp Val Ser Gly Ala Ala Val Ala
    370                 375                 380

Arg His Ile Arg Asp Ala Arg Val Pro Gly Phe Cys Gly Ala Leu Gly
385                 390                 395                 400

Gly Ala Glu Glu Pro Ser Phe Val Leu Leu Asp Thr Asp Ala Thr Gly
                405                 410                 415

Asp Gln Leu Phe Ala Thr Tyr Val Leu Asp Pro Thr Gln Gly Phe Phe
            420                 425                 430

His Ser Ala Gly Thr Pro Val His Phe Pro Lys Gly Gly Arg Gly Pro
        435                 440                 445

Gly Pro Asp Pro Ser Cys Trp Phe Asp Pro Asp Thr Ile Cys Asn Gly
    450                 455                 460

Gly Val Glu Pro Ser Val Val Phe Ile Gly Phe Leu Leu Val Val Gly
465                 470                 475                 480

Met Gly Leu Ala Gly Ala Phe Leu Ala His Tyr Cys Arg His Arg Leu
                485                 490                 495

Leu His Ile Gln Met Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Leu
            500                 505                 510

Asp Asp Ile Thr Phe Leu His Pro His Gly Gly Asn Ser Arg Lys Val
        515                 520                 525

Ala Gln Gly Ser Arg Thr Ser Leu Ala Ala Arg Ser Ile Ser Asp Val
    530                 535                 540

Arg Ser Ile His Ser Gln Leu Pro Asp Tyr Thr Asn Ile Gly Leu Tyr
545                 550                 555                 560

Glu Gly Asp Trp Val Trp Leu Lys Lys Phe Pro Gly Asp Arg His Ile
                565                 570                 575

Ala Ile Arg Pro Ala Thr Lys Met Ala Phe Ser Lys Ile Arg Glu Leu
            580                 585                 590
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```
Arg His Glu Asn Val Ala Leu Tyr Leu Gly Leu Phe Leu Ala Gly Gly
        595                 600                 605

Ala Gly Gly Pro Ala Ala Pro Gly Glu Gly Val Leu Ala Val Val Ser
    610                 615                 620

Glu His Cys Ala Arg Gly Ser Leu Gln Asp Leu Leu Ala Gln Arg Asp
625                 630                 635                 640

Ile Lys Leu Asp Trp Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile
                645                 650                 655

Lys Gly Ile Arg Tyr Leu His His Arg Gly Val Ala His Gly Arg Leu
            660                 665                 670

Lys Ser Arg Asn Cys Val Val Asp Gly Arg Phe Val Leu Lys Val Thr
        675                 680                 685

Asp His Gly His Gly Arg Leu Leu Glu Ala Gln Arg Val Leu Pro Glu
    690                 695                 700

Pro Pro Ser Ala Glu Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg
705                 710                 715                 720

Asp Pro Val Leu Glu Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser
                725                 730                 735

Leu Gly Ile Ile Met Gln Glu Val Val Cys Arg Ser Ala Pro Tyr Ala
            740                 745                 750

Met Leu Glu Leu Thr Pro Glu Glu Val Val Lys Arg Val Gln Ser Pro
        755                 760                 765

Pro Pro Leu Cys Arg Pro Ser Val Ser Ile Asp Gln Ala Pro Met Glu
    770                 775                 780

Cys Ile Gln Leu Met Lys Gln Cys Trp Ala Glu Gln Pro Glu Leu Arg
785                 790                 795                 800

Pro Ser Met Asp Arg Thr Phe Glu Leu Phe Lys Ser Ile Asn Lys Gly
                805                 810                 815

Arg Lys Met Asn Ile Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr
            820                 825                 830

Ser Ser Asn Leu Glu Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu
        835                 840                 845

Leu Glu Lys Gln Lys Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro
    850                 855                 860

Ser Val Ala Glu Ala Leu Lys Met Gly Thr Pro Val Glu Pro Glu Tyr
```

865 870 875 880

Phe Glu Glu Val Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr
885 890 895

Ile Ser Ala Met Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp
900 905 910

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

Val Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln
930 935 940

Arg Asn Gly His Arg His Ala Ala Glu Ile Ala Asn Met Ala Leu Asp
945 950 955 960

Ile Leu Ser Ala Val Gly Thr Phe Arg Met Arg His Met Pro Glu Val
965 970 975

Pro Val Arg Ile Arg Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly
980 985 990

Val Val Gly Leu Thr Met Pro Arg Tyr Cys Leu Phe Gly Asp Thr Val
995 1000 1005

Asn Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Tyr Arg Ile
1010 1015 1020

His Val Asn Arg Ser Thr Val Gln Ile Leu Ser Ala Leu Asn Glu
1025 1030 1035

Gly Phe Leu Thr Glu Val Arg Gly Arg Thr Glu Leu Lys Gly Lys
1040 1045 1050

Gly Ala Glu Glu Thr Tyr Trp Leu Val Gly Arg Arg Gly Phe Asn
1055 1060 1065

Lys Pro Ile Pro Lys Pro Pro Asp Leu Gln Pro Gly Ala Ser Asn
1070 1075 1080

His Gly Ile Ser Leu His Glu Ile Pro Pro Asp Arg Arg Gln Lys
1085 1090 1095

Leu Glu Lys Ala Arg Pro Gly Gln Phe Ser Gly Lys
1100 1105 1110

<210> 5
<211> 1109
<212> PRT
<213> Canis familiaris

<400> 5

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Met Ser Ala Cys Ala Leu Leu Ala Gly Gly Leu Pro Asp Pro Arg Leu
1               5                  10                  15

Cys Ala Pro Ala Arg Trp Ala Arg Ser Pro Pro Gly Val Pro Gly Ala
            20                  25                  30

Pro Pro Trp Pro Gln Pro Arg Leu Arg Leu Leu Leu Leu Leu Leu Leu
        35                  40                  45

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

Pro Trp Ala Cys Asp Pro Ile Phe Ala Arg Ala Arg Pro Asp Leu Ala
65                  70                  75                  80

Ala Arg Leu Ala Ala Ala Arg Leu Asn Arg Asp Ala Ala Leu Glu Asp
                85                  90                  95

Gly Pro Arg Phe Glu Val Thr Leu Leu Pro Glu Pro Cys Arg Thr Pro
            100                 105                 110

Gly Ser Leu Gly Ala Val Ser Ser Ala Leu Gly Arg Val Ser Gly Leu
        115                 120                 125

Val Gly Pro Val Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala
    130                 135                 140

Gln Glu Ala Gly Val Ala Leu Val Pro Trp Ser Cys Pro Gly Thr Arg
145                 150                 155                 160

Ala Gly Gly Thr Thr Ala Pro Ala Gly Thr Pro Ala Ala Asp Ala Leu
                165                 170                 175

Tyr Ala Leu Leu Arg Ala Phe Arg Trp Ala Arg Val Ala Leu Ile Thr
            180                 185                 190

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

Leu Arg Ala Arg Gly Leu Pro Val Ala Leu Val Thr Thr Met Glu Pro
    210                 215                 220

Ser Asp Leu Ser Gly Ala Arg Glu Ala Leu Arg Arg Val Gln Asp Gly
225                 230                 235                 240

Pro Arg Val Arg Ala Val Ile Met Val Met His Ser Val Leu Leu Gly
                245                 250                 255

Gly Glu Glu Gln Arg Cys Leu Leu Gln Ala Ala Glu Glu Leu Gly Leu
            260                 265                 270
```

```
Ala Asp Gly Ser Leu Val Phe Leu Pro Phe Asp Thr Leu His Tyr Ala
        275                 280                 285

Leu Ser Pro Gly Pro Glu Ala Leu Ala Val Leu Ala Asn Ser Ser Gln
    290                 295                 300

Leu Arg Arg Ala His Asp Ala Val Leu Ile Leu Thr Arg His Cys Pro
305                 310                 315                 320

Pro Gly Gly Ser Val Met Asp Asn Leu Arg Arg Ala Gln Glu His Gln
                325                 330                 335

Glu Leu Pro Ser Asp Leu Asp Leu Gln Gln Val Ser Pro Phe Phe Gly
            340                 345                 350

Thr Ile Tyr Asp Ala Val Leu Leu Leu Ala Gly Gly Val Ala Arg Ala
        355                 360                 365

Arg Ala Ala Ala Gly Gly Gly Trp Val Ser Gly Ala Thr Val Ala His
    370                 375                 380

His Ile Pro Asp Ala Gln Val Pro Gly Phe Cys Gly Thr Leu Gly Gly
385                 390                 395                 400

Ala Gln Glu Pro Pro Phe Val Leu Leu Asp Thr Asp Ala Ala Gly Asp
                405                 410                 415

Arg Leu Phe Ala Thr Tyr Met Leu Asp Pro Thr Arg Gly Ser Leu Leu
            420                 425                 430

Ser Ala Gly Thr Pro Val His Phe Pro Arg Gly Gly Gly Thr Pro Gly
        435                 440                 445

Ser Asp Pro Ser Cys Trp Phe Glu Pro Gly Val Ile Cys Asn Gly Gly
    450                 455                 460

Val Glu Pro Gly Leu Val Phe Leu Gly Phe Leu Leu Val Val Gly Met
465                 470                 475                 480

Gly Leu Thr Gly Ala Phe Leu Ala His Tyr Leu Arg His Arg Leu Leu
                485                 490                 495

His Ile Gln Met Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Leu Asp
            500                 505                 510

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

Gln Gly Ser Arg Ser Ser Leu Ala Ala Arg Ser Thr Ser Asp Ile Arg
    530                 535                 540

Ser Val Pro Ser Gln Pro Leu Asp Asn Ser Asn Ile Gly Leu Phe Glu
```

545 550 555 560

Gly Asp Trp Val Trp Leu Lys Lys Phe Pro Gly Asp Gln His Ile Ala
565 570 575

Ile Arg Pro Ala Thr Lys Thr Ala Phe Ser Lys Leu Arg Glu Leu Arg
580 585 590

His Glu Asn Val Val Leu Tyr Leu Gly Leu Phe Leu Gly Ser Gly Gly
595 600 605

Ala Gly Gly Ser Ala Ala Gly Glu Gly Val Leu Ala Val Val Ser Glu
610 615 620

His Cys Ala Arg Gly Ser Leu His Asp Leu Leu Ala Gln Arg Asp Ile
625 630 635 640

Lys Leu Asp Trp Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys
645 650 655

Gly Met Arg Tyr Leu His His Arg Gly Val Ala His Gly Arg Leu Lys
660 665 670

Ser Arg Asn Cys Val Val Asp Gly Arg Phe Val Leu Lys Val Thr Asp
675 680 685

His Gly His Ala Arg Leu Met Glu Ala Gln Arg Val Leu Leu Glu Pro
690 695 700

Pro Ser Ala Glu Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp
705 710 715 720

Pro Ala Leu Glu Arg Arg Gly Thr Leu Pro Gly Asp Val Phe Ser Leu
725 730 735

Gly Ile Ile Met Gln Glu Val Val Cys Arg Ser Ala Pro Tyr Ala Met
740 745 750

Leu Glu Leu Thr Pro Glu Glu Val Val Glu Arg Val Arg Ser Pro Pro
755 760 765

Pro Leu Cys Arg Pro Ser Val Ser Met Asp Gln Ala Pro Val Glu Cys
770 775 780

Ile Gln Leu Met Lys Gln Cys Trp Ala Glu His Pro Asp Leu Arg Pro
785 790 795 800

Ser Leu Gly His Ile Phe Asp Gln Phe Lys Ser Ile Asn Lys Gly Arg
805 810 815

Lys Thr Asn Ile Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser
820 825 830

```
Ser Asn Leu Glu Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu
        835                 840                 845

Glu Lys Gln Lys Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser
    850                 855                 860

Val Ala Glu Ala Leu Lys Met Gly Thr Pro Val Glu Pro Glu Tyr Phe
865                 870                 875                 880

Glu Glu Val Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile
                885                 890                 895

Ser Ala Met Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu
            900                 905                 910

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

Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg
    930                 935                 940

Asn Gly Gln Arg His Ala Ala Glu Ile Ala Asn Met Ala Leu Asp Ile
945                 950                 955                 960

Leu Ser Ala Val Gly Ser Phe Arg Met Arg His Met Pro Glu Val Pro
                965                 970                 975

Val Arg Ile Arg Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val
            980                 985                 990

Val Gly Leu Thr Met Pro Arg Tyr  Cys Leu Phe Gly Asp  Thr Val Asn
        995                 1000                1005

Thr Ala  Ser Arg Met Glu Ser  Thr Gly Leu Pro Tyr  Arg Ile His
    1010                1015                1020

Val Asn  Met Ser Thr Val Arg  Ile Leu His Ala Leu  Asp Glu Gly
    1025                1030                1035

Phe Gln  Thr Glu Val Arg Gly  Arg Thr Glu Leu Lys  Gly Lys Gly
    1040                1045                1050

Ala Glu  Asp Thr Tyr Trp Leu  Val Gly Arg Arg Gly  Phe Asn Lys
    1055                1060                1065

Pro Ile  Pro Lys Pro Pro Asp  Leu Gln Pro Gly Ala  Ser Asn His
    1070                1075                1080

Gly Ile  Ser Leu Gln Glu Ile  Pro Leu Asp Arg Arg  Trp Lys Leu
    1085                1090                1095
```

```
Glu Lys  Ala Arg Pro Gly Gln  Phe Ser Gly Lys
    1100                1105


<210>  6
<211>  1103
<212>  PRT
<213>  Macaca mulatta

<400>  6

Met Thr Ala Cys Ala Arg Arg Ala Gly Gly Leu Pro Asp Pro Arg Leu
1               5                  10                  15

Cys Gly Pro Ala Arg Trp Ala Pro Ala Leu Pro Arg Leu Pro Arg Ala
            20                  25                  30

Leu Pro Arg Leu Pro Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro
        35                  40                  45

Ala Leu Ser Ala Val Phe Thr Val Gly Val Leu Gly Pro Trp Ala Cys
    50                  55                  60

Asp Pro Ile Phe Ser Arg Ala Arg Ala Asp Leu Ala Ala Arg Leu Ala
65                  70                  75                  80

Ala Ala Arg Leu Asn Arg Asp Pro Asp Leu Ala Gly Gly Pro Arg Phe
                85                  90                  95

Glu Val Ala Leu Leu Pro Glu Pro Cys Arg Thr Pro Gly Ser Leu Gly
            100                 105                 110

Ala Val Ser Ser Ala Leu Thr Arg Val Ser Gly Leu Val Gly Pro Val
        115                 120                 125

Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Glu Glu Ala Gly
    130                 135                 140

Ile Ala Leu Val Pro Trp Gly Cys Pro Gly Thr Gln Ala Ala Gly Thr
145                 150                 155                 160

Thr Ala Pro Ala Leu Thr Pro Ala Ala Asp Ala Leu Tyr Ala Leu Leu
                165                 170                 175

Arg Ala Phe Gly Trp Ala Arg Val Ala Leu Val Thr Ala Pro Gln Asp
            180                 185                 190

Leu Trp Val Glu Ala Gly His Ser Leu Ser Thr Ala Leu Arg Ala Arg
        195                 200                 205

Gly Leu Pro Val Ala Ser Val Thr Ser Met Glu Pro Leu Asp Leu Ser
    210                 215                 220

Gly Ala Arg Glu Ala Leu Arg Lys Val Arg Asp Gly Pro Arg Val Thr
```

225 230 235 240

Ala Val Ile Met Val Met His Ser Val Leu Leu Gly Gly Glu Glu Gln
245 250 255

Arg Tyr Leu Leu Glu Ala Ala Glu Glu Leu Gly Leu Thr Asp Gly Ser
260 265 270

Leu Val Phe Leu Pro Phe Asp Thr Val His Tyr Ala Leu Ser Pro Gly
275 280 285

Pro Glu Ala Leu Ala Ala Leu Ala Asn Ser Ser Gln Leu Arg Arg Ala
290 295 300

His Asp Ala Val Leu Thr Leu Thr Arg His Cys Pro Ser Glu Gly Ser
305 310 315 320

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

Asp Leu Asn Leu Gln Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp
340 345 350

Ala Val Phe Leu Leu Val Arg Gly Val Ala Glu Ala Arg Ala Ala Ala
355 360 365

Gly Gly Arg Trp Val Ser Gly Ala Ala Val Ala Arg His Val Trp Asp
370 375 380

Ala Gln Val Pro Gly Phe Cys Gly Asp Leu Gly Gly Asp Glu Glu Pro
385 390 395 400

Pro Phe Val Leu Leu Asp Thr Asp Ala Val Gly Asp Arg Leu Phe Ala
405 410 415

Thr Tyr Met Leu Asp Pro Thr Arg Gly Ser Leu Leu Ser Ala Gly Thr
420 425 430

Pro Met His Phe Pro Arg Gly Gly Ser Ala Pro Gly Pro Asp Pro Ser
435 440 445

Cys Trp Phe Asp Pro Asn Asn Ile Cys Gly Gly Gly Leu Glu Pro Gly
450 455 460

Leu Val Phe Leu Gly Phe Leu Leu Val Val Gly Met Gly Leu Ala Gly
465 470 475 480

Ala Phe Leu Ala His Tyr Val Arg His Gln Leu Leu His Ile Gln Met
485 490 495

Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Val Asp Asp Ile Thr Phe
500 505 510

```
Leu His Pro His Gly Gly Thr Ser Arg Lys Val Ala Gln Gly Ser Arg
        515                 520                 525

Ser Ser Leu Ala Ala Arg Ser Met Ser Asp Val Arg Ser Gly Pro Ser
    530                 535                 540

Gln Pro Thr Asp Ser Pro Asn Val Gly Val Tyr Glu Gly Asp Arg Val
545                 550                 555                 560

Trp Leu Lys Lys Phe Pro Gly Asp Gln His Ile Ala Ile Arg Pro Ala
                565                 570                 575

Thr Lys Thr Ala Phe Ser Lys Leu Gln Glu Leu Arg His Glu Asn Val
            580                 585                 590

Ala Leu Tyr Leu Gly Leu Phe Leu Ala Gln Gly Ala Glu Gly Pro Ala
        595                 600                 605

Ala Leu Trp Glu Gly Asn Leu Ala Val Val Ser Glu His Cys Thr Arg
    610                 615                 620

Gly Ser Leu Gln Asp Leu Leu Ala Gln Arg Glu Ile Lys Leu Asp Trp
625                 630                 635                 640

Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Ile Arg Tyr
                645                 650                 655

Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn Cys
            660                 665                 670

Ile Val Asp Gly Arg Phe Val Leu Lys Ile Thr Asp His Gly His Gly
        675                 680                 685

Arg Leu Leu Glu Ala Gln Lys Val Leu Pro Glu Pro Pro Arg Ala Glu
    690                 695                 700

Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Ala Leu Glu
705                 710                 715                 720

Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Ala Ile Ile Met
                725                 730                 735

Gln Glu Val Val Cys Arg Ser Ala Pro Tyr Ala Met Leu Glu Leu Thr
            740                 745                 750

Pro Glu Glu Val Val Gln Arg Val Arg Ser Pro Pro Pro Leu Cys Arg
        755                 760                 765

Pro Leu Val Ser Met Asp Gln Ala Pro Val Glu Cys Ile His Leu Met
    770                 775                 780
```

```
Lys Gln Cys Trp Ala Glu Gln Pro Glu Leu Arg Pro Ser Met Asp His
785                 790                 795                 800

Thr Phe Asp Leu Phe Lys Asn Ile Asn Lys Gly Arg Lys Thr Asn Ile
                805                 810                 815

Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser Asn Leu Glu
            820                 825                 830

Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu Glu Lys Gln Lys
        835                 840                 845

Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser Val Ala Glu Ala
    850                 855                 860

Leu Lys Thr Gly Thr Pro Val Glu Pro Glu Tyr Phe Glu Gln Val Thr
865                 870                 875                 880

Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser Ala Met Ser
                885                 890                 895

Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr Thr Leu Phe
            900                 905                 910

Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val Glu Thr Ile Gly
        915                 920                 925

Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn Gly Gln Arg
    930                 935                 940

His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile Leu Ser Ala Val
945                 950                 955                 960

Gly Thr Phe Arg Met Arg His Met Pro Glu Val Pro Val Arg Ile Arg
                965                 970                 975

Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val Gly Leu Thr
            980                 985                 990

Met Pro Arg Tyr Cys Leu Phe Gly  Asp Thr Val Asn Thr  Ala Ser Arg
        995                 1000                1005

Met Glu  Ser Thr Gly Leu Pro  Tyr Arg Ile His Val  Asn Leu Ser
    1010                1015                1020

Thr Val  Gly Ile Leu Arg Ala  Leu Asp Ser Gly Tyr  Gln Val Glu
    1025                1030                1035

Leu Arg  Gly Arg Thr Glu Leu  Lys Gly Lys Gly Ala  Glu Asp Thr
    1040                1045                1050
```

```
Phe Trp  Leu Val Gly Arg Arg  Gly Phe Asn Lys Pro  Ile Pro Lys
    1055                 1060                 1065

Pro Pro  Asp Leu Gln Pro Gly  Ser Ser Asn His Gly  Ile Ser Leu
    1070                 1075                 1080

Gln Glu  Ile Pro Pro Glu Arg  Arg Arg Lys Leu Glu  Lys Ala Arg
    1085                 1090                 1095

Pro Gly  Gln Phe Ser
    1100
```

<210> 7
<211> 1103
<212> PRT
<213> Pongo pygmaeus

<400> 7

```
Met Thr Ala Cys Ala Arg Arg Ala Gly Gly Leu Pro Asp Pro Gly Leu
1               5                  10                  15

Cys Gly Pro Ala Arg Trp Ala Pro Ser Leu Pro Arg Leu Pro Arg Ala
            20                  25                  30

Leu Pro Arg Leu Pro Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro
        35                  40                  45

Ala Leu Ser Ala Val Phe Thr Val Gly Val Leu Gly Pro Trp Ala Cys
    50                  55                  60

Asp Pro Ile Phe Ser Arg Ala Arg Pro Asp Leu Ala Ala Arg Leu Ala
65                  70                  75                  80

Ala Ala Arg Leu Asn Arg Asp Pro Gly Leu Ala Gly Gly Pro Arg Phe
                85                  90                  95

Glu Val Ala Leu Leu Pro Glu Pro Cys Arg Thr Pro Gly Ser Leu Gly
            100                 105                 110

Ala Val Ser Ser Ala Leu Ala Arg Val Ser Gly Leu Val Gly Pro Val
        115                 120                 125

Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Asp Asn Pro Gly
    130                 135                 140

Ile Ala Leu Val Pro Trp Gly Cys Pro Trp Thr Gln Ala Glu Gly Thr
145                 150                 155                 160

Thr Ala Pro Cys Val Thr Pro Ala Ala Asp Ala Leu Tyr Ala Leu Leu
                165                 170                 175

Arg Ala Phe Gly Trp Ala Arg Val Ala Leu Val Thr Ala Pro Gln Asp
            180                 185                 190
```

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

Gly Leu Pro Val Ala Ser Val Thr Ser Met Glu Pro Leu Asp Leu Ser
210 215 220

Gly Ala Arg Glu Ala Leu Arg Lys Val Arg Asp Gly Pro Arg Val Thr
225 230 235 240

Ala Val Ile Met Val Met His Ser Val Leu Leu Gly Gly Glu Glu Gln
245 250 255

Arg Tyr Leu Leu Glu Ala Ala Glu Glu Leu Gly Leu Thr Asp Gly Ser
260 265 270

Leu Val Phe Leu Pro Phe Asp Thr Ile His Tyr Ala Leu Ser Pro Gly
275 280 285

Pro Glu Ala Leu Ala Ala Leu Ala Asn Ser Ser Gln Leu Arg Arg Ala
290 295 300

His Asp Ala Val Leu Thr Leu Thr Arg His Cys Pro Ser Glu Gly Ser
305 310 315 320

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

Asp Leu Asn Leu Gln Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp
340 345 350

Ala Val Phe Leu Leu Ala Arg Gly Val Ala Glu Ala Trp Ala Ala Ala
355 360 365

Gly Gly Arg Trp Val Ser Gly Ala Ala Val Ala Arg His Ile Arg Asp
370 375 380

Ala Gln Val Pro Gly Phe Cys Gly Asp Leu Gly Gly Asp Gly Glu Pro
385 390 395 400

Pro Phe Val Leu Leu Asp Thr Asp Ala Ala Gly Asp Arg Leu Phe Ala
405 410 415

Thr Tyr Met Leu Asp Pro Ala Arg Gly Ser Phe Leu Ser Ala Gly Thr
420 425 430

Arg Met His Phe Pro Arg Gly Gly Ser Ala Pro Gly Pro Asp Pro Ser
435 440 445

Cys Trp Phe Asp Pro Asn Asn Ile Cys Gly Gly Gly Leu Glu Pro Gly
450 455 460

```
Leu Val Phe Leu Gly Phe Leu Leu Val Val Gly Met Gly Leu Ala Gly
465                 470                 475                 480

Ala Phe Leu Ala His Tyr Val Arg His Arg Leu Leu His Ile Gln Met
                485                 490                 495

Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Val Asn Asp Ile Thr Phe
            500                 505                 510

Leu His Pro His Gly Gly Thr Ser Arg Lys Val Ala Gln Gly Ser Arg
        515                 520                 525

Ser Ser Leu Ala Ala Arg Ser Met Ser Asp Ile Arg Ser Gly Pro Ser
    530                 535                 540

Gln Pro Leu Asp Ser Pro Asn Val Gly Val Tyr Glu Gly Asp Arg Val
545                 550                 555                 560

Trp Leu Lys Lys Phe Pro Gly Asp Gln His Ile Ala Ile Arg Pro Ala
                565                 570                 575

Thr Lys Thr Ala Phe Ser Lys Leu Gln Glu Leu Arg His Glu Asn Val
            580                 585                 590

Ala Leu Tyr Leu Gly Leu Phe Leu Ala Arg Gly Ala Glu Gly Pro Ala
        595                 600                 605

Ala Leu Trp Glu Gly Asn Leu Ala Val Val Ser Glu His Cys Thr Arg
    610                 615                 620

Gly Ser Leu Gln Asp Leu Leu Ser Gln Arg Glu Ile Lys Leu Asp Trp
625                 630                 635                 640

Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Ile Arg Tyr
                645                 650                 655

Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn Cys
            660                 665                 670

Ile Val Asp Gly Arg Phe Val Leu Lys Ile Thr Asp His Gly His Gly
        675                 680                 685

Arg Leu Leu Glu Ala Gln Lys Val Leu Pro Glu Pro Pro Arg Ala Glu
    690                 695                 700

Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Ala Leu Glu
705                 710                 715                 720

Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Ala Ile Ile Met
                725                 730                 735
```

```
Gln Glu Val Val Cys Arg Ser Ala Pro Tyr Ala Met Leu Glu Leu Thr
            740                 745                 750

Pro Glu Glu Val Val Gln Arg Val Arg Ser Pro Pro Pro Leu Cys Arg
        755                 760                 765

Pro Leu Val Ser Met Asp Gln Ala Pro Val Glu Cys Ile His Leu Met
    770                 775                 780

Lys Gln Cys Trp Ala Glu Gln Pro Glu Leu Arg Pro Ser Met Asp His
785                 790                 795                 800

Thr Phe Asp Leu Phe Lys Asn Ile Asn Lys Gly Arg Lys Thr Asn Ile
                805                 810                 815

Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser Asn Leu Glu
            820                 825                 830

Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu Glu Lys Gln Lys
        835                 840                 845

Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser Val Ala Glu Ala
    850                 855                 860

Leu Lys Thr Gly Thr Pro Val Glu Pro Glu Tyr Phe Glu Gln Val Thr
865                 870                 875                 880

Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser Ala Met Ser
                885                 890                 895

Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr Thr Leu Phe
            900                 905                 910

Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val Glu Thr Ile Gly
        915                 920                 925

Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn Gly Gln Arg
    930                 935                 940

His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile Leu Ser Ala Val
945                 950                 955                 960

Gly Thr Phe Arg Met Arg His Met Pro Glu Val Pro Val Arg Ile Arg
                965                 970                 975

Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val Gly Leu Thr
            980                 985                 990

Met Pro Arg Tyr Cys Leu Phe Gly  Asp Thr Val Asn Thr  Ala Ser Arg
        995                 1000                1005

Met Glu  Ser Thr Gly Leu Pro  Tyr Arg Ile His Val  Asn Leu Ser
```

1010 1015 1020

Thr Val Gly Ile Leu Arg Ala Leu Asp Ser Gly Tyr Gln Val Glu
1025 1030 1035

Leu Arg Gly Arg Thr Glu Leu Lys Gly Lys Gly Ala Glu Asp Thr
1040 1045 1050

Phe Trp Leu Val Gly Arg Arg Gly Phe Asn Lys Pro Ile Pro Lys
1055 1060 1065

Pro Pro Asp Leu Gln Pro Gly Ser Ser Asn His Gly Ile Ser Leu
1070 1075 1080

Gln Glu Ile Pro Pro Glu Arg Arg Arg Lys Leu Glu Lys Ala Arg
1085 1090 1095

Pro Gly Gln Phe Ser
1100

<210> 8
<211> 1103
<212> PRT
<213> Callithrix jacchus

<400> 8

Met Thr Ala Cys Ala Arg Arg Ala Gly Gly Leu Pro Asp Pro Gly Leu
1 5 10 15

Cys Gly Pro Ala Arg Trp Ala Pro Ala Leu Ser Arg Leu Pro Arg Ala
20 25 30

Leu Pro Arg Leu Pro Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro
35 40 45

Ala Leu Ser Ala Gln Phe Thr Val Gly Val Leu Gly Pro Trp Ala Cys
50 55 60

Asp Pro Ile Phe Ser Arg Ala Arg Pro Asp Leu Ala Ala Arg Leu Ala
65 70 75 80

Ala Ala Arg Leu Asn Arg Asp Pro Ser Leu Ala Gly Gly Pro Arg Phe
85 90 95

Glu Val Ala Leu Leu Pro Glu Pro Cys Arg Thr Pro Gly Ser Leu Gly
100 105 110

Ala Val Ser Ser Ala Leu Ala Arg Val Ser Gly Leu Val Gly Pro Val
115 120 125

Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Glu Glu Ala Gly
130 135 140

```
Ile Ala Leu Val Pro Trp Gly Cys Pro Gly Thr Gln Ala Ala Gly Thr
145                 150                 155                 160

Thr Ala Pro Val Val Thr Pro Ala Ala Asp Ala Leu Tyr Ala Leu Leu
                165                 170                 175

Arg Ala Phe Gly Trp Ala Arg Val Ala Leu Val Thr Ala Pro Gln Asp
            180                 185                 190

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

Gly Leu Pro Val Val Ser Val Thr Ser Met Glu Pro Leu Asp Leu Ser
    210                 215                 220

Gly Ala Arg Glu Ala Leu Arg Lys Val Arg Asn Gly Pro Arg Val Thr
225                 230                 235                 240

Ala Val Ile Met Val Met His Ser Val Leu Leu Gly Gly Glu Glu Gln
                245                 250                 255

Arg Tyr Leu Leu Glu Ala Ala Glu Glu Leu Gly Leu Thr Asp Gly Ser
            260                 265                 270

Leu Val Phe Leu Pro Phe Asp Thr Ile His Tyr Ala Leu Ser Pro Gly
        275                 280                 285

Arg Glu Ala Leu Ala Ala Leu Val Asn Ser Ser Gln Leu Arg Arg Ala
    290                 295                 300

His Asp Ala Val Leu Thr Leu Thr Arg His Cys Ser Ser Glu Gly Ser
305                 310                 315                 320

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

Asp Leu Asn Leu Glu Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp
            340                 345                 350

Ala Val Val Leu Leu Ala Arg Gly Val Ala Asp Ala Arg Ala Ala Val
        355                 360                 365

Gly Gly Arg Trp Val Ser Gly Ala Ala Val Ala Arg His Val Trp Asp
    370                 375                 380

Ala Gln Ala Ser Gly Phe Cys Gly Asp Leu Gly Arg Asp Glu Glu Pro
385                 390                 395                 400

Ser Phe Val Leu Leu Asp Thr Asp Ala Ala Gly Asp Gln Leu Phe Ala
                405                 410                 415
```

```
Thr Tyr Met Leu Asp Pro Ala Arg Gly Ser Leu Leu Ser Ala Gly Thr
            420                 425                 430

Pro Met His Phe Pro Arg Gly Gly Pro Ala Pro Gly Pro Asp Pro Ser
        435                 440                 445

Cys Trp Phe Asp Pro Asn Asn Ile Cys Asp Gly Gly Leu Glu Pro Gly
    450                 455                 460

Phe Ile Phe Leu Gly Phe Leu Leu Val Val Gly Met Gly Leu Ala Gly
465                 470                 475                 480

Ala Leu Leu Ala His Tyr Val Arg His Gln Leu Leu His Ile Gln Met
                485                 490                 495

Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Val Asp Asp Ile Thr Phe
            500                 505                 510

Leu His Pro His Gly Gly Ala Ser Arg Lys Val Ala Gln Gly Ser Arg
        515                 520                 525

Ser Ser Leu Ala Ala His Ser Thr Ser Asp Ile Arg Ser Gly Pro Ser
    530                 535                 540

Gln Pro Ser Asp Ser Pro Asn Ile Gly Val Tyr Glu Gly Asp Arg Val
545                 550                 555                 560

Trp Leu Lys Lys Phe Pro Gly Glu Gln His Ile Ala Ile Arg Pro Ala
                565                 570                 575

Thr Lys Thr Ala Phe Ser Lys Leu Gln Glu Leu Arg His Glu Asn Val
            580                 585                 590

Ala Leu Tyr Leu Gly Leu Phe Leu Ala Gln Gly Ala Glu Gly Pro Ala
        595                 600                 605

Ala Leu Trp Glu Gly Asn Leu Ala Val Val Ser Glu His Cys Thr Arg
    610                 615                 620

Gly Ser Leu Gln Asp Leu Leu Ala Gln Arg Glu Ile Lys Leu Asp Trp
625                 630                 635                 640

Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Ile Arg Tyr
                645                 650                 655

Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn Cys
            660                 665                 670

Ile Val Asp Gly Arg Phe Val Leu Lys Ile Thr Asp His Gly His Gly
        675                 680                 685

Arg Leu Leu Glu Ala Gln Lys Val Leu Pro Glu Pro Pro Lys Ala Glu
```

690 695 700

Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Ala Leu Glu
705 710 715 720

Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Gly Ile Ile Met
725 730 735

Gln Glu Val Val Cys Arg Ser Ala Pro Tyr Ala Met Leu Glu Leu Thr
740 745 750

Pro Asp Glu Val Val Gln Arg Val Arg Ser Pro Pro Pro Leu Cys Arg
755 760 765

Pro Phe Val Ser Met Asp Gln Ala Pro Val Glu Cys Ile His Leu Met
770 775 780

Lys Gln Cys Trp Ala Glu Gln Pro Glu Leu Arg Pro Ser Met Asp Leu
785 790 795 800

Thr Phe Asp Leu Phe Lys Asn Ile Asn Lys Gly Arg Lys Thr Asn Ile
805 810 815

Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser Asn Leu Glu
820 825 830

Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu Glu Lys Gln Lys
835 840 845

Thr Asp Arg Leu Leu Thr Gln Met Leu Pro Pro Ser Val Ala Glu Ala
850 855 860

Leu Lys Thr Gly Thr Pro Val Glu Pro Glu Tyr Phe Glu Gln Val Thr
865 870 875 880

Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser Ala Met Ser
885 890 895

Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr Thr Leu Phe
900 905 910

Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val Glu Thr Ile Gly
915 920 925

Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn Gly Gln Arg
930 935 940

His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile Leu Ser Ala Val
945 950 955 960

Gly Thr Phe Arg Met Arg His Met Pro Glu Val Pro Val Arg Ile Arg
965 970 975

```
Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val Gly Leu Thr
            980                 985                 990

Met Pro Arg Tyr Cys Leu Phe Gly  Asp Thr Val Asn Thr  Ala Ser Arg
        995                 1000                1005

Met Glu  Ser Thr Gly Leu Pro  Tyr Arg Ile His Val  Asn Leu Ser
    1010                1015                1020

Thr Val  Gly Ile Leu Arg Ala  Leu Asp Ser Gly Tyr  Gln Val Glu
    1025                1030                1035

Leu Arg  Gly Arg Thr Glu Leu  Lys Gly Lys Gly Ala  Glu Asp Thr
    1040                1045                1050

Phe Trp  Leu Val Gly Arg Arg  Gly Phe Asn Lys Pro  Ile Pro Lys
    1055                1060                1065

Pro Pro  Asp Leu Gln Pro Gly  Ala Ser Asn His Gly  Ile Ser Leu
    1070                1075                1080

Gln Glu  Ile Pro Pro Glu Arg  Arg Arg Lys Leu Glu  Lys Ala Arg
    1085                1090                1095

Pro Gly  Gln Phe Ser
    1100
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<210> 9
<211> 1012
<212> PRT
<213> Ailuropoda melanoleuca

<220>
<221> misc_feature
<222> (80)..(88)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (964)..(971)
<223> Xaa can be any naturally occurring amino acid

<400> 9

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Met Arg Ala Cys Ala Leu Leu Ala Gly Gly Leu Pro Tyr Pro Arg Leu
1               5                   10                  15

Cys Ala Pro Thr Arg Trp Ala Pro Ala Arg Pro Gly Val Ser Arg Ala
            20                  25                  30

Leu Pro Trp Pro Arg Pro Arg Leu Arg Leu Leu Leu Leu Leu Leu Leu
        35                  40                  45

Arg Pro Pro Ser Val Leu Ser Ala Val Phe Thr Val Gly Val Leu Gly
```

50 55 60

Pro Trp Ala Cys Asp Pro Ile Phe Ala Arg Ala Arg Pro Asp Leu Xaa
65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asp Ala Leu Tyr Val Leu Leu Arg
85 90 95

Ala Phe Arg Trp Ala Arg Val Ala Leu Val Thr Ala Pro Gln Asp Leu
100 105 110

Trp Val Glu Ala Gly Arg Ala Leu Ser Ala Ala Leu Arg Ala Arg Gly
115 120 125

Leu Pro Val Ala Leu Val Thr Thr Met Glu Pro Ser Asp Leu Ser Gly
130 135 140

Ala Arg Glu Ala Leu Arg Arg Val Gln His Gly Pro Arg Val Ser Ala
145 150 155 160

Val Ile Met Val Met His Ser Val Leu Leu Gly Gly Glu Glu Gln Arg
165 170 175

Cys Leu Leu Gln Ala Ala Glu Glu Leu Gly Leu Ala Asp Gly Ser Leu
180 185 190

Val Phe Leu Pro Phe Asp Thr Leu His Tyr Ala Leu Ser Pro Gly Pro
195 200 205

Glu Ala Leu Ala Ala Leu Ala Asn Ser Ser Gln Leu Arg Arg Ala His
210 215 220

Asp Ala Val Leu Thr Leu Thr Arg His Cys Pro Pro Gly Gly Ser Val
225 230 235 240

Met Asp Ser Leu Arg Arg Ala Gln Glu Arg Gln Glu Leu Pro Ser Asp
245 250 255

Leu Asn Leu Glu Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp Ala
260 265 270

Val Phe Leu Leu Ala Gly Gly Val Ala Arg Ala Arg Ala Ala Ala Ala
275 280 285

Asp Ser Arg Val Pro Gly Phe Cys Gly Ala Leu Gly Gly Ala Glu Glu
290 295 300

Pro Pro Phe Val Leu Leu Asp Thr Asp Ala Ala Gly Asp Arg Phe Phe
305 310 315 320

Ala Thr Tyr Val Leu Asp Pro Thr Arg Gly Ser Leu His Ser Ala Gly
325 330 335

```
Thr Pro Val His Phe Pro Arg Gly Gly Gly Ala Pro Gly Pro Asp Pro
            340                 345                 350

Ser Cys Trp Phe Glu Pro Asp Ser Ile Cys Asn Gly Gly Val Glu Pro
        355                 360                 365

Gly Leu Val Phe Thr Gly Phe Leu Leu Val Val Gly Met Gly Leu Met
    370                 375                 380

Gly Ala Phe Leu Ala His Tyr Val Arg His Arg Leu Leu His Ile Gln
385                 390                 395                 400

Met Val Ser Gly Pro Asn Lys Ile Ile Leu Thr Leu Asp Asp Ile Thr
                405                 410                 415

Phe Leu His Pro Gln Gly Gly Ser Ala Arg Lys Val Val Gln Gly Ser
            420                 425                 430

Arg Ser Ser Leu Ala Ala Arg Ser Thr Ser Asp Val Arg Ser Val Pro
        435                 440                 445

Ser Gln Pro Ser Asp Gly Gly Asn Ile Gly Leu Tyr Glu Gly Asp Trp
    450                 455                 460

Val Trp Leu Lys Lys Phe Pro Gly Ser Gln His Ile Ala Ile Arg Pro
465                 470                 475                 480

Ala Thr Lys Thr Ala Phe Ser Lys Leu Arg Glu Leu Arg His Glu Asn
                485                 490                 495

Val Ala Leu Tyr Leu Gly Leu Phe Leu Gly Gly Gly Glu Gly Gly Ser
            500                 505                 510

Ala Ala Ala Gly Gly Gly Met Leu Ala Val Val Ser Glu His Cys Thr
        515                 520                 525

Arg Gly Ser Leu His Asp Leu Leu Ala Gln Arg Asp Ile Lys Leu Asp
    530                 535                 540

Trp Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Met Arg
545                 550                 555                 560

Tyr Leu His His Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn
                565                 570                 575

Cys Val Val Asp Gly Arg Phe Val Leu Lys Val Thr Asp His Gly His
            580                 585                 590

Gly Arg Leu Leu Glu Ala Gln Lys Val Leu Ala Glu Pro Pro Ser Ala
        595                 600                 605
```

Glu Asp Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Ala Leu
610 615 620

Glu Arg Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Gly Ile Ile
625 630 635 640

Met Gln Glu Val Val Cys Arg Ser Ser Pro Tyr Ala Met Leu Glu Leu
645 650 655

Ser Ala Arg Glu Val Val Gln Arg Val Arg Ser Pro Pro Pro Leu Cys
660 665 670

Arg Pro Ser Val Ser Val Asp Gln Ala Pro Ala Glu Cys Ile Gln Leu
675 680 685

Met Lys Gln Cys Trp Ala Glu Gln Pro Glu Leu Arg Pro Ser Leu Asp
690 695 700

Arg Thr Phe Asp Gln Phe Lys Ser Ile Asn Lys Gly Arg Lys Thr Asn
705 710 715 720

Ile Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser Ser Asn Leu
725 730 735

Glu Gly Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu Glu Lys Arg
740 745 750

Lys Thr Asp Arg Leu Arg Ala Ala Ser Leu Pro Ser Ser Val Ala Glu
755 760 765

Ala Leu Lys Met Gly Thr Pro Val Glu Pro Glu Tyr Phe Glu Glu Val
770 775 780

Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Ser Ala Met
785 790 795 800

Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu Tyr Thr Leu
805 810 815

Phe Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val Glu Thr Ile
820 825 830

Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Gln Arg Asn Gly Gln
835 840 845

Arg His Ala Ala Glu Ile Ala Asn Met Ala Leu Asp Ile Leu Ser Ala
850 855 860

Val Gly Ser Phe Arg Met Arg His Met Pro Glu Val Pro Val Arg Ile
865 870 875 880

```
Arg Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val Val Gly Leu
                885                 890                 895

Thr Met Pro Arg Tyr Cys Leu Phe Gly Asp Thr Val Asn Thr Ala Ser
            900                 905                 910

Arg Met Glu Ser Thr Gly Leu Pro Tyr Arg Ile His Val Asn Met Ser
        915                 920                 925

Thr Val Arg Ile Leu Arg Ala Leu Asp Glu Gly Phe Gln Thr Glu Val
    930                 935                 940

Arg Gly Arg Thr Glu Leu Lys Gly Lys Gly Ala Glu Asp Thr Tyr Trp
945                 950                 955                 960

Leu Val Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Pro Ile Pro Lys Pro
                965                 970                 975

Pro Asp Leu Gln Pro Gly Ala Ser Asn His Gly Ile Ser Leu Gln Glu
            980                 985                 990

Ile Pro Leu Asp Arg Arg Gln Lys  Leu Glu Lys Ala Arg  Pro Gly Gln
        995                 1000                1005

Phe Ser  Gly Lys
    1010
```

<210> 10
<211> 1093
<212> PRT
<213> Monodelphis domestica

<400> 10

```
Met Leu Val Pro Ser Ile Asn Gly Leu Phe His His Pro Pro Trp Cys
1               5                   10                  15

Phe Pro Pro Leu Pro Leu Pro Leu Phe Phe Leu Phe Leu Leu Leu Leu
            20                  25                  30

Leu Pro Val Pro Val Leu Pro Ala Thr Phe Thr Ile Gly Val Leu Gly
        35                  40                  45

Pro Trp Ser Cys Asp Pro Ile Phe Ser Arg Ala Arg Pro Asp Leu Ala
    50                  55                  60

Ala Arg Leu Ala Ala Thr Arg Met Asn His Asp Gln Ala Leu Glu Gly
65                  70                  75                  80

Gly Pro Trp Phe Glu Val Ile Leu Leu Pro Glu Pro Cys Arg Thr Ser
                85                  90                  95

Gly Ser Leu Gly Ala Leu Ser Pro Ser Leu Ala Arg Val Ser Gly Leu
            100                 105                 110
```

```
Val Gly Pro Val Asn Pro Ala Ala Cys His Pro Ala Glu Leu Leu Ala
        115                 120                 125

Gln Glu Ala Gly Val Pro Leu Val Pro Trp Gly Cys Pro Gln Gly Lys
    130                 135                 140

Ala Arg Thr Thr Ala Pro Ala Leu Pro Leu Ala Leu Asp Ala Leu Tyr
145                 150                 155                 160

Ala Leu Leu Arg Ala Phe His Trp Ala Lys Val Ala Leu Ile Thr Ala
                165                 170                 175

Pro Gln Asp Leu Trp Val Glu Ala Gly Gln Ala Leu Ala Gly Gly Leu
            180                 185                 190

Arg Ser Arg Gly Leu Pro Val Ala Met Val Thr Ser Leu Glu Thr Thr
        195                 200                 205

Asp Leu Glu Ser Ala Lys Asn Ala Leu Lys Arg Val Arg Asp Gly Pro
    210                 215                 220

Lys Val Lys Val Leu Ile Met Val Met His Ser Val Leu Leu Gly Gly
225                 230                 235                 240

Glu Glu Gln Arg Leu Leu Leu Glu Ala Ala Glu Glu Leu Gly Leu Val
                245                 250                 255

Glu Gly Thr Met Val Phe Leu Pro Phe Asp Thr Leu His Tyr Ala Leu
            260                 265                 270

Pro Pro Gly Pro Glu Ala Leu Arg Pro Ile Thr Asn Ser Ser Arg Leu
        275                 280                 285

Arg Lys Ala His Asp Ala Val Leu Thr Leu Thr Arg Tyr Cys Pro Lys
    290                 295                 300

Gly Ser Val Ser Ala Ser Leu Arg Gln Ala Gln Glu His Arg Glu Leu
305                 310                 315                 320

Pro Leu Asp Leu Lys Pro Gln Gln Val Ser Pro Leu Phe Gly Thr Ile
                325                 330                 335

Tyr Asp Ala Ile Tyr Leu Leu Ala Gly Ala Val Ala Gly Ala Gln Val
            340                 345                 350

Ala Gly Gly Gly Gly Trp Val Ser Gly Ala Ala Val Ala Arg His Ile
        355                 360                 365

Pro Asn Thr Leu Val Ser Gly Phe Cys Gly Asp Leu Gly Gly Thr Lys
    370                 375                 380
```

```
Glu Pro Pro Phe Val Leu Leu Asp Thr Asp Gly Met Arg Asp Gln Leu
385                 390                 395                 400

Leu Pro Thr Tyr Thr Leu Asp Pro Ala Gln Gly Val Leu His His Ala
                405                 410                 415

Gly Asn Pro Ile His Phe Pro His Gly Gly Gln Gly Pro Gly Pro Asp
            420                 425                 430

Pro Pro Cys Trp Phe Asp Pro Asn Val Ile Cys Ser Gly Gly Ile Glu
        435                 440                 445

Pro Arg Phe Ile Leu Leu Val Ile Leu Ile Ile Ile Gly Gly Gly Leu
    450                 455                 460

Val Val Ala Thr Leu Ala Tyr Tyr Val Arg Arg Gln Leu Leu His Ala
465                 470                 475                 480

Gln Met Val Ser Gly Pro Asn Lys Met Ile Leu Thr Leu Glu Asp Ile
                485                 490                 495

Thr Phe Phe Pro Arg Gln Gly Ser Ser Ser Arg Lys Ala Thr Glu Gly
            500                 505                 510

Ser Arg Ser Ser Leu Ile Ala His Ser Ala Ser Asp Met Arg Ser Ile
        515                 520                 525

Pro Ser Gln Pro Pro Asp Asn Ser Asn Ile Gly Met Tyr Glu Gly Asp
    530                 535                 540

Trp Val Trp Leu Lys Lys Phe Pro Gly Glu His Tyr Thr Glu Ile Arg
545                 550                 555                 560

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

Asn Val Ala Val Gln Met Gly Leu Phe Leu Ala Gly Ser Met Glu Gly
            580                 585                 590

Ala Ala Ala Gly Gly Leu Gly Gly Gly Ile Leu Ala Val Val Ser Glu
        595                 600                 605

Tyr Cys Ser Arg Gly Ser Leu Gln Asp Leu Leu Ile Gln Arg Asp Ile
    610                 615                 620

Lys Leu Asp Trp Met Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys
625                 630                 635                 640

Gly Leu Arg Tyr Leu His His Arg Gly Val Ala His Gly Arg Leu Lys
                645                 650                 655
```

Ser Arg Asn Cys Val Val Asp Gly Arg Phe Val Leu Lys Ile Thr Asp
660 665 670

His Ala His Gly Arg Leu Leu Glu Ala Gln Arg Val Ser Leu Glu Pro
675 680 685

Pro Gln Ala Glu Asp Arg Leu Trp Thr Ala Pro Glu Leu Leu Arg Asn
690 695 700

Glu Ala Leu Glu Arg Gln Gly Thr Leu Gln Gly Asp Val Phe Ser Val
705 710 715 720

Gly Ile Ile Met Gln Glu Val Val Cys Arg Cys Glu Pro Tyr Ala Met
725 730 735

Leu Glu Leu Thr Pro Glu Glu Ile Ile Gln Lys Val Gln Ser Pro Pro
740 745 750

Pro Met Cys Arg Pro Ser Val Ser Val Asp Gln Ala Pro Met Glu Cys
755 760 765

Ile Gln Leu Met Lys Gln Cys Trp Ala Glu Gln Pro Asp Leu Arg Pro
770 775 780

Asn Met Asp Thr Thr Phe Asp Leu Phe Lys Asn Ile Asn Lys Gly Arg
785 790 795 800

Lys Thr Asn Ile Ile Asp Ser Met Leu Arg Met Leu Glu Gln Tyr Ser
805 810 815

Ser Asn Leu Glu Asp Leu Ile Arg Glu Arg Thr Glu Glu Leu Glu Leu
820 825 830

Glu Lys Gln Lys Thr Asp Lys Leu Leu Thr Gln Met Leu Pro Pro Ser
835 840 845

Val Ala Glu Ala Leu Lys Leu Gly Ile Pro Val Glu Pro Glu Tyr Phe
850 855 860

Glu Glu Val Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile
865 870 875 880

Ser Ala Met Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn Asp Leu
885 890 895

Tyr Thr Leu Phe Asp Ala Ile Ile Gly Ser His Asp Val Tyr Lys Val
900 905 910

Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Lys Arg
915 920 925

Asn Gly Gln Arg His Ala Ala Glu Ile Ala Asn Met Ser Leu Asp Ile

930 935 940

Leu Ser Ser Val Gly Ser Phe Arg Met Arg His Met Pro Glu Val Pro
945 950 955 960

Val Arg Ile Arg Ile Gly Leu His Ser Gly Pro Cys Val Ala Gly Val
965 970 975

Val Gly Leu Thr Met Pro Arg Tyr Cys Leu Phe Gly Asp Thr Val Asn
980 985 990

Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Tyr Arg Ile His Val
995 1000 1005

Asn Leu Ser Thr Val Lys Ile Leu Gln Gly Leu Asn Glu Gly Phe
1010 1015 1020

Gln Ile Glu Ile Arg Gly Arg Thr Glu Leu Lys Gly Lys Gly Val
1025 1030 1035

Glu Asp Thr Tyr Trp Leu Val Gly Arg Lys Gly Phe Asp Lys Pro
1040 1045 1050

Ile Pro Ile Pro Pro Asp Leu Leu Pro Gly Ala Ser Asn His Gly
1055 1060 1065

Ile Ser Leu Gln Glu Ile Pro Glu Asp Arg Arg Lys Lys Leu Glu
1070 1075 1080

Lys Ala Arg Pro Gly Gln Pro Leu Gly Lys
1085 1090

<210> 11
<211> 862
<212> PRT
<213> Equus caballus

<400> 11

Met Val Met His Ser Val Leu Leu Gly Gly Glu Glu Gln Arg Cys Leu
1 5 10 15

Leu Glu Ala Ala Glu Glu Leu Gly Leu Ala Asp Gly Ser Leu Val Phe
20 25 30

Leu Pro Phe Asp Thr Leu His Tyr Ala Leu Ser Pro Gly Pro Glu Ala
35 40 45

Leu Ala Val Leu Ala Asn Asn Ser Gln Leu Arg Arg Ala His Asp Ala
50 55 60

Val Leu Thr Leu Thr Arg His Cys Pro Leu Gly Gly Ser Val Leu Asp
65 70 75 80

```
Ser Leu Arg Arg Ala Gln Glu His Gln Glu Leu Pro Ser Asp Leu Asn
                85                  90                  95

Leu Gln Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp Ala Val Tyr
            100                 105                 110

Leu Leu Ala Gly Gly Val Ala Arg Ala Arg Ala Ala Ala Gly Gly Ser
        115                 120                 125

Trp Val Ser Gly Ala Ala Val Ala His His Val Arg Asp Ala Gln Val
    130                 135                 140

Pro Gly Phe Cys Gly Ala Leu Gly Gly Ala Glu Glu Pro Gln Phe Val
145                 150                 155                 160

Leu Leu Asp Thr Asp Ala Ala Gly Asp Arg Leu Phe Ala Thr Tyr Met
                165                 170                 175

Leu Asp Pro Thr Arg Gly Ser Leu Trp Ser Ala Gly Thr Pro Val His
            180                 185                 190

Phe Pro Arg Gly Gly Arg Gly Pro Gly Pro Asp Pro Trp Cys Trp Phe
        195                 200                 205

Asp Pro Asp Asp Ile Cys Asn Gly Gly Val Glu Pro Arg Leu Val Phe
    210                 215                 220

Ile Gly Phe Leu Leu Ala Val Gly Met Gly Leu Ala Gly Val Phe Leu
225                 230                 235                 240

Ala His Tyr Val Arg His Arg Leu Leu His Ile Gln Met Ala Ser Gly
                245                 250                 255

Pro Asn Lys Ile Ile Leu Thr Leu Asp Asp Ile Thr Phe Leu His Pro
            260                 265                 270

Gln Gly Gly Ser Ser Arg Lys Val Ile Gln Gly Ser Arg Ser Ser Leu
        275                 280                 285

Ala Ala Arg Ser Val Ser Asp Ile Arg Ser Val Pro Ser Gln Pro Met
    290                 295                 300

Asp Ser Ser Asn Ile Gly Leu Tyr Glu Gly Asp Trp Val Trp Leu Lys
305                 310                 315                 320

Lys Phe Pro Gly Asp Gln His Ile Ala Ile Arg Pro Ala Thr Lys Thr
                325                 330                 335

Ala Phe Ser Lys Leu Arg Glu Leu Arg His Glu Asn Val Ala Leu Tyr
            340                 345                 350
```

```
Leu Gly Leu Phe Leu Ala Gly Gly Ser Ser Gly Ala Ala Ala Pro Arg
        355                 360                 365

Glu Gly Met Leu Ala Val Val Ser Glu His Cys Ala Arg Gly Ser Leu
    370                 375                 380

His Asp Leu Leu Ala Gln Arg Asp Ile Lys Leu Asp Trp Met Phe Lys
385                 390                 395                 400

Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Met Arg Tyr Leu His His
                405                 410                 415

Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn Cys Val Val Asp
            420                 425                 430

Gly Arg Phe Val Leu Lys Val Thr Asp His Gly His Gly Arg Leu Leu
        435                 440                 445

Glu Ala Gln Lys Val Leu Pro Glu Pro Pro Ser Ala Glu Asp Gln Leu
    450                 455                 460

Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Ala Leu Glu Arg Gln Gly
465                 470                 475                 480

Thr Leu Ala Gly Asp Val Phe Ser Leu Gly Ile Ile Ile Gln Glu Val
                485                 490                 495

Val Cys Arg Ser Thr Pro Tyr Ala Met Leu Glu Leu Thr Pro Glu Glu
            500                 505                 510

Val Val Gln Arg Leu Gln Ser Pro Pro Pro Leu Cys Arg Pro Ser Val
        515                 520                 525

Ser Met Asp Gln Ala Pro Met Glu Cys Ile Gln Leu Met Lys Gln Cys
    530                 535                 540

Trp Ala Glu Gln Pro Asp Leu Arg Pro Ser Met Asp Arg Thr Phe Asp
545                 550                 555                 560

Leu Phe Lys Ser Ile Asn Lys Gly Arg Lys Thr Asn Ile Ile Asp Ser
                565                 570                 575

Met Leu Arg Met Leu Glu Gln Tyr Ser Ser Asn Leu Glu Asp Leu Ile
            580                 585                 590

Arg Glu Arg Thr Glu Glu Leu Glu Leu Glu Lys Gln Lys Thr Asp Arg
        595                 600                 605

Leu Leu Thr Gln Met Leu Pro Pro Ser Val Ala Glu Ala Leu Lys Met
    610                 615                 620

Gly Thr Pro Val Glu Pro Glu Tyr Phe Glu Glu Val Thr Leu Tyr Phe
```

625 630 635 640

Ser Asp Ile Val Gly Phe Thr Thr Ile Ser Ala Met Ser Glu Pro Ile
645 650 655

Glu Val Val Asp Leu Leu Asn Asp Leu Tyr Thr Leu Phe Asp Ala Ile
660 665 670

Ile Gly Ser His Asp Val Tyr Lys Val Glu Thr Ile Gly Asp Ala Tyr
675 680 685

Met Val Ala Ser Gly Leu Pro Gln Arg Asn Gly Gln Arg His Ala Ala
690 695 700

Glu Ile Ala Asn Met Ala Leu Asp Ile Leu Ser Ala Val Gly Ser Phe
705 710 715 720

Arg Met Arg His Met Pro Glu Val Pro Val Arg Ile Arg Ile Gly Leu
725 730 735

His Ser Gly Pro Cys Val Ala Gly Val Val Gly Leu Thr Met Pro Arg
740 745 750

Tyr Cys Leu Phe Gly Asp Thr Val Asn Thr Ala Ser Arg Met Glu Ser
755 760 765

Thr Gly Leu Pro Tyr Arg Ile His Val Asn Met Ser Thr Val Arg Ile
770 775 780

Leu Arg Ala Leu Asp Glu Gly Phe Gln Val Glu Val Arg Gly Arg Thr
785 790 795 800

Glu Leu Lys Gly Lys Gly Val Glu Asp Thr Tyr Trp Leu Val Gly Arg
805 810 815

Arg Gly Phe Asn Lys Pro Ile Pro Lys Pro Pro Asp Leu Gln Pro Gly
820 825 830

Ala Ser Asn His Gly Ile Ser Leu Gln Glu Ile Pro Pro Glu Arg Arg
835 840 845

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

<210> 12
<211> 292
<212> DNA
<213> Homo sapiens

<400> 12
gggccccaga agcctggtgg ttgtttgtcc ttctcagggg aaaagtgagg cggccccttg 60

gaggaagggg ccgggcagaa tgatctaatc ggattccaag cagctcaggg gattgtcttt 120

ttctagcacc ttcttgccac tcctaagcgt cctccgtgac cccggctggg atttagcctg 180

gtgctgtgtc agccccggtc tcccaggggc ttcccagtgg tccccaggaa ccctcgacag 240

ggcccggtct ctctcgtcca gcaagggcag ggacgggcca caggccaagg gc 292

<210> 13
<211> 953
<212> DNA
<213> Artificial Sequence

<220>
<223> hybrid CBA/CMV promoter

<400> 13
aattcggtac cctagttatt aatagtaatc aattacgggg tcattagttc atagcccata 60

tatggagttc cgcgttacat aacttacggt aaatggcccg cctggctgac cgcccaacga 120

cccccgccca ttgacgtcaa taatgacgta tgttcccata gtaacgccaa tagggacttt 180

ccattgacgt caatgggtgg actatttacg gtaaactgcc cacttggcag tacatcaagt 240

gtatcatatg ccaagtacgc cccctattga cgtcaatgac ggtaaatggc ccgcctggca 300

ttatgcccag tacatgacct tatgggactt tcctacttgg cagtacatct acgtattagt 360

catcgctatt accatggtcg aggtgagccc cacgttctgc ttcactctcc ccatctcccc 420

cccctcccca cccccaattt tgtatttatt tatttttaa ttattttgtg cagcgatggg 480

ggcgggggg ggggggggc gcgcgccagg cggggcgggg cggggcgagg ggcggggcgg 540

ggcgaggcgg agaggtgcgg cggcagccaa tcagagcggc gcgctccgaa agtttccttt 600

tatggcgagg cggcggcggc ggcggcccta taaaaagcga agcgcgcggc gggcgggagt 660

cgctgcgacg ctgccttcgc cccgtgcccc gctccgccgc cgcctcgcgc cgcccgcccc 720

ggctctgact gaccgcgtta ctcccacagg tgagcgggcg ggacggccct tctcctccgg 780

gctgtaatta gcgcttggtt taatgacggc ttgtttcttt tctgtggctg cgtgaaagcc 840

ttgaggggct ccgggagcta gagcctctgc taaccatgtt catgccttct tctttttcct 900

acagctcctg ggcaacgtgc tggttattgt gctgtctcat cattttggca aag 953

<210> 14
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Forward Primer

<400> 14
aaaagcggcc gcatgagcgc ttggctcctg ccagcc 36

<210> 15
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Reverse Primer

<400> 15
aaaagcggcc gctcacttcc cagtaaactg gcctgg 36

<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Forward Primer

<400> 16
gacccttcct gctggttcga tcca 24

<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Reverse Primer

<400> 17
ctgcatgtgt agcagcctgt gcctc 25

<210> 18
<211> 992
<212> PRT
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Met Ser Ala Ala Gly Gly Leu Gly Cys Pro Arg Ala Pro Ser Ile Pro
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Arg Leu Leu Leu Leu Leu Leu Leu Ser Leu Ser Ala Val Phe Val Gly
20 25 30

Val Leu Gly Pro Trp Ala Cys Asp Pro Ile Phe Ala Arg Ala Arg Pro
35 40 45

Asp Ile Ala Ala Arg Leu Ala Ala Arg Leu Asn Ala Leu Asp Gly Gly
50 55 60

Pro Arg Phe Glu Val Ala Leu Leu Pro Glu Pro Cys Thr Pro Gly Ser
65 70 75 80

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

Val Asn Pro Ala Ala Cys Arg Pro Ala Glu Leu Leu Ala Gln Glu Ala
100 105 110

Gly Val Ala Leu Val Pro Trp Gly Val Pro Gly Thr Arg Ala Ala Gly
115 120 125

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Thr Thr Ala Pro Val Thr Pro Ala Ala Asp Ala Leu Tyr Leu Leu Arg
    130                 135                 140

Ala Phe Arg Trp Ala Val Ala Leu Ile Thr Ala Pro Gln Asp Leu Trp
145                 150                 155                 160

Val Glu Ala Gly Ala Leu Ser Thr Ala Leu Arg Ala Arg Gly Leu Pro
                165                 170                 175

Val Ala Leu Val Thr Ser Met Glu Val Arg Val Ile Met Val Met Gly
            180                 185                 190

Ser Val Leu Leu Gly Gly Glu Glu Gln Arg Leu Leu Glu Ala Ala Glu
        195                 200                 205

Glu Leu Ala Leu Asp Gly Ser Leu Val Phe Leu Pro Phe Asp Thr Leu
    210                 215                 220

His Trp Ala Leu Ser Pro Gly Pro Asp Ala Ile Ala Asn Ser Ser Gln
225                 230                 235                 240

Leu Arg Lys Ala His Asp Ala Val Leu Thr Leu Thr Arg Cys Pro Gly
                245                 250                 255

Gly Ser Val Asp Ser Leu Arg Arg Ala Gln Glu His Glu Leu Pro Leu
            260                 265                 270

Asp Leu Asn Leu Gln Val Ser Pro Leu Phe Gly Thr Ile Tyr Asp Ala
        275                 280                 285

Val Phe Leu Leu Ala Gly Gly Thr Ala Thr Ala Gly Gly Gly Trp Val
    290                 295                 300

Ser Gly Ala Ala Val Ala Arg Ile Arg Asp Ala Val Gly Phe Cys Gly
305                 310                 315                 320

Leu Gly Glu Glu Pro Ser Phe Val Leu Ile Asp Thr Asp Ala Ser Gly
                325                 330                 335

Asp Gln Leu Phe Ala Thr His Leu Leu Asp Pro Gly Ser Ala Gly Thr
            340                 345                 350

Pro Met His Phe Pro Lys Gly Gly Ala Pro Gly Pro Asp Pro Ser Cys
        355                 360                 365

Trp Phe Asp Pro Asp Ile Cys Asn Gly Gly Val Glu Pro Leu Val Phe
    370                 375                 380

Ile Gly Phe Leu Leu Val Ile Gly Met Gly Leu Gly Ala Phe Leu Ala
385                 390                 395                 400
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Phe Leu Ala His Tyr Arg His Arg Leu Leu His Ile Gln Met Ser Gly
405 410 415

Pro Asn Lys Ile Ile Leu Thr Leu Asp Asp Ile Thr Phe Leu His Pro
420 425 430

Gly Gly Ser Arg Lys Val Gln Gly Ser Arg Ser Ser Leu Ala Arg Ser
435 440 445

Ser Asp Ile Arg Ser Ile Ser Gln Asp Thr Asn Ile Gly Leu Tyr Glu
450 455 460

Gly Asp Trp Val Trp Leu Lys Lys Phe Pro Gly Asp His Ile Ala Ile
465 470 475 480

Arg Pro Ala Thr Lys Ala Phe Ser Lys Ile Arg Glu Leu Arg His Glu
485 490 495

Asn Val Ala Leu Tyr Leu Gly Leu Phe Leu Ala Gly Ala Gly Ala Pro
500 505 510

Ala Pro Gly Glu Gly Ile Leu Ala Val Val Ser Glu His Cys Ala Arg
515 520 525

Gly Ser Leu Asp Leu Leu Ala Gln Arg Asp Ile Lys Leu Asp Trp Met
530 535 540

Phe Lys Ser Ser Leu Leu Leu Asp Leu Ile Lys Gly Ile Arg Tyr Leu
545 550 555 560

His His Arg Gly Val Ala His Gly Arg Leu Lys Ser Arg Asn Cys Val
565 570 575

Val Asp Gly Arg Phe Val Leu Lys Val Thr Asp His Gly His Gly Arg
580 585 590

Leu Leu Glu Ala Gln Arg Val Leu Pro Glu Pro Pro Ser Ala Glu Asp
595 600 605

Gln Leu Trp Thr Ala Pro Glu Leu Leu Arg Asp Pro Leu Glu Arg Arg
610 615 620

Arg Gly Thr Leu Ala Gly Asp Val Phe Ser Leu Ala Ile Ile Met Gln
625 630 635 640

Glu Val Val Cys Arg Ser Pro Tyr Ala Met Leu Glu Leu Thr Pro Glu
645 650 655

Glu Val Ile Arg Val Ser Pro Pro Pro Leu Cys Arg Pro Val Ser Ile
660 665 670

Asp Gln Ala Pro Met Glu Cys Ile Gln Leu Met Gln Val Trp Ala Glu

675 680 685

Pro Glu Leu Arg Pro Ser Met Asp Thr Phe Asp Leu Phe Lys Ser Ile
690 695 700

Asn Lys Gly Arg Lys Asn Ile Ile Asp Ser Met Leu Arg Met Leu Glu
705 710 715 720

Gln Tyr Ser Ser Asn Leu Glu Asp Leu Ile Arg Glu Arg Thr Glu Glu
725 730 735

Leu Glu Glu Glu Lys Gln Lys Thr Asp Arg Leu Leu Thr Gln Met Leu
740 745 750

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

Tyr Phe Glu Glu Val Thr Leu Tyr Phe Ser Asp Ile Val Gly Phe Thr
770 775 780

Thr Ile Ser Ala Met Ser Glu Pro Ile Glu Val Val Asp Leu Leu Asn
785 790 795 800

Asp Leu Tyr Thr Leu Phe Asp Ala Ile Ile Gly Ala His Asp Val Tyr
805 810 815

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

Gln Arg Asn Gly Arg His Ala Ala Glu Ile Ala Asn Met Ala Leu Asp
835 840 845

Ile Leu Ser Ala Val Gly Ser Phe Arg Phe Arg Met Arg His Met Pro
850 855 860

Glu Val Pro Val Arg Ile Arg Ile Gly Leu His Ser Gly Pro Cys Val
865 870 875 880

Ala Gly Val Val Gly Leu Thr Met Pro Arg Tyr Cys Leu Phe Gly Asp
885 890 895

Thr Val Asn Thr Ala Ser Met Glu Ser Thr Gly Leu Pro Tyr Arg Ile
900 905 910

His Val Asn Ser Thr Val Ile Leu Ala Leu Gly Phe Glu Arg Gly Arg
915 920 925

Thr Glu Leu Lys Gly Lys Gly Glu Asp Thr Tyr Trp Leu Val Gly Arg
930 935 940

Gly Phe Asn Lys Pro Ile Pro Lys Pro Pro Asp Leu Gln Pro Gly Ala
945 950 955 960

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Ser Asn His Gly Ile Ser Leu His Gly Ile Ser Leu Glu Ile Pro Pro
                965                 970                 975

Asp Arg Arg Lys Leu Glu Lys Ala Arg Pro Gly Gln Phe Ser Gly Lys
            980                 985                 990
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