SEQUENCE LISTING

<110> ELIXIRGEN, LLC
Ko, Minoru S.H.

<120> METHODS OF USING ZSCAN4 FOR REJUVINATING HUMAN CELLS

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<140> Not Yet Assigned
<141> Concurrently Herewith

<150> US 61/800,668
<151> 2013-03-15

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<170> FastSEQ for Windows Version 4.0

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Trp Leu Gln Pro Glu Lys Gln Thr Lys Glu Gln Met Ile Ser Gln Leu
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Val Leu Glu Gln Phe Leu Leu Thr Gly His Cys Lys Asp Lys Tyr Ala
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Leu Thr Glu Lys Trp Lys Ala Ser Gly Ser Asp Met Arg Arg Phe Met
100 105 110
Glu Ser Leu Thr Asp Glu Cys Leu Lys Pro Pro Val Met Val His Val
115 120 125
Ser Met Gln Gly Gln Glu Ala Leu Phe Ser Glu Asn Met Pro Leu Lys
130 135 140
Glu Val Ile Lys Leu Leu Lys Gln Gln Gln Ser Ala Thr Arg Pro Thr
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Pro Asp Asn Ala Gln Met Pro Val Asp Thr Thr Gln Asp Arg Leu Leu
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Ala Thr Gly Gln Glu Asn Ser Glu Asn Glu Cys Asn Thr Ser Cys Asn
180 185 190
Ala Thr Glu Gly Asn Val Gly Glu Ser Cys Ser Gly Asn Glu Met Asp
195 200 205
Ser Ser Leu Ile Ile Gln Lys Glu Gln Tyr Pro Glu His Glu Glu Gly
210 215 220
Asn Val Val Cys Gln Phe Pro Leu Asp Ala Arg Arg Ala Ser Gln Gly
225 230 235 240
Thr Ser Ser His His Val Asp Phe Leu Ser Ala Leu Thr Thr Ala Asp
245 250 255
Val Pro Met Glu Glu Gln Pro Lys Asp Leu Ser Arg Glu Asn Ile Ser
260 265 270
Glu Asp Lys Asn Asn Cys Tyr Asn Thr Ser Arg Asn Ala Ala Thr Lys
275 280 285
Val Tyr Ser Gly Asp Asn Ile Pro Arg Lys Lys Thr Asp Ser Leu Ser
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Tyr Gly Val Pro Gln Asp Ser Thr Arg Ala Ser Gln Gly Thr Ser Thr
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<212> PRT
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Leu Thr Glu Lys Trp Lys Ala Ser Gly Ser Asp Met Arg Arg Phe Met
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Glu Ser Leu Thr Asp Glu Cys Leu Lys Pro Pro Val Met Val His Val
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Glu Val Ile Lys Leu Leu Lys Gln Gln Gln Ser Ala Thr Arg Pro Ile
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Pro Asp Asn Ala Gln Met Pro Val Asp Thr Thr Gln Asp Arg Leu Leu
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Ser Leu Leu Ile Ile Gln Lys Glu Gln His Pro Glu His Glu Glu Gly
    210                 215                 220
Asn Val Val Cys Gln Phe Pro His Gly Ala Arg Arg Ala Ser Gln Gly
225                 230                 235                 240
Thr Pro Ser His His Val Asp Phe Pro Ser Ala Pro Thr Thr Ala Asp
                245                 250                 255
Val Pro Met Glu Glu Gln Pro Lys Asp Leu Ser Arg Glu Asn Ile Ser
            260                 265                 270
Glu Asp Lys Asn Asn Cys Tyr Asn Thr Ser Arg Asn Ala Ala Thr Gln
        275                 280                 285
Val Tyr Ser Gly Asp Asn Ile Pro Arg Asn Lys Ser Asp Ser Leu Phe
    290                 295                 300
```

```
Ile Asn Lys Arg Ile Tyr His Pro Glu Pro Glu Val Gly Asp Ile Pro
305                 310                 315                 320
Tyr Gly Val Pro Gln Asp Ser Thr Arg Ala Ser Gln Gly Thr Ser Thr
                325                 330                 335
Cys Leu Gln Glu Ser Leu Gly Glu Cys Phe Ser Glu Asn Asp Pro Arg
            340                 345                 350
Glu Val Pro Gly Leu Gln Ser Arg Gln Glu Gln Pro Ile Ser Asp Pro
        355                 360                 365
Val Leu Leu Gly Lys Asn His Glu Ala Asn Leu Pro Cys Glu Ser His
    370                 375                 380
Gln Lys Arg Phe Cys Arg Asp Ala Lys Leu Tyr Lys Cys Glu Glu Cys
385                 390                 395                 400
Ser Arg Met Phe Lys His Ala Arg Ser Leu Ser Ser His Gln Arg Thr
                405                 410                 415
His Leu Asn Lys Lys Ser Glu Leu Leu Cys Val Thr Cys Gln Lys Met
            420                 425                 430
Phe Lys Arg Val Ser Asp Arg Arg Thr His Glu Ile Ile His Met Pro
        435                 440                 445
Glu Lys Pro Phe Lys Cys Ser Thr Cys Glu Lys Ser Phe Ser His Lys
    450                 455                 460
Thr Asn Leu Lys Ser His Glu Met Ile His Thr Gly Glu Met Pro Tyr
465                 470                 475                 480
Val Cys Ser Leu Cys Ser Arg Arg Phe Arg Gln Ser Ser Thr Tyr His
                485                 490                 495
Arg His Leu Arg Asn Tyr His Arg Ser Asp
            500                 505
```

<210> 14
<211> 506
<212> PRT
<213> Mus musculus

<400> 14

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

```
Glu Asp Lys Asn Asn Cys Tyr Asn Thr Ser Arg Asn Ala Ala Thr Gln
        275                 280                 285
Val Tyr Arg Ser Asp Asn Ile Pro Arg Lys Lys Thr Asp Ser Leu Ser
    290                 295                 300
Ile Asn Lys Arg Ile Tyr His Ser Glu Pro Glu Glu Gly Asp Ile Pro
305                 310                 315                 320
Tyr Gly Val Pro Gln Asp Ser Thr Arg Ala Ser Gln Gly Thr Ser Thr
                325                 330                 335
Cys Leu Gln Glu Ser Leu Gly Glu Cys Phe Ser Glu Lys Asp Pro Arg
            340                 345                 350
Glu Leu Pro Gly Leu Glu Ser Arg Gln Glu Glu Pro Ile Ser Asp Pro
        355                 360                 365
Val Phe Leu Gly Lys Asp His Glu Ala Asn Leu Pro Cys Glu Ser His
    370                 375                 380
Gln Lys Arg Phe Arg Arg Asp Ala Lys Leu Phe Lys Cys Glu Glu Cys
385                 390                 395                 400
Ser Arg Met Phe Lys His Ala Arg Ser Leu Ser Ser His Gln Arg Thr
                405                 410                 415
His Leu Asn Lys Lys Ser Glu Leu Leu Cys Val Thr Cys Gln Lys Met
            420                 425                 430
Phe Lys Arg Val Ser Asp Arg Arg Thr His Glu Ile Ile His Met Pro
        435                 440                 445
Glu Lys Pro Phe Lys Cys Ser Thr Cys Glu Lys Ser Phe Ser His Lys
    450                 455                 460
Thr Asn Leu Lys Ser His Glu Met Ile His Thr Gly Glu Met Pro Tyr
465                 470                 475                 480
Val Cys Ser Leu Cys Ser Arg Arg Phe Arg Gln Ser Ser Thr Tyr His
                485                 490                 495
Arg His Leu Arg Asn Tyr His Arg Ser Asp
            500                 505
```

<210> 15
<211> 195
<212> PRT
<213> Mus musculus

<400> 15

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

<210> 16
<211> 506

<212> PRT
<213> Mus musculus

<400> 16

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

<210> 17
<211> 433
<212> PRT
<213> Homo sapiens

<400> 17
Met Ala Leu Asp Leu Arg Thr Ile Phe Gln Cys Glu Pro Ser Glu Asn
 1   5   10   15
Asn Leu Gly Ser Glu Asn Ser Ala Phe Gln Gln Ser Gln Gly Pro Ala
            20   25   30
Val Gln Arg Glu Glu Gly Ile Ser Glu Phe Ser Arg Met Val Leu Asn
        35   40   45
Ser Phe Gln Asp Ser Asn Asn Ser Tyr Ala Arg Gln Glu Leu Gln Arg
    50   55   60
Leu Tyr Arg Ile Phe His Ser Trp Leu Gln Pro Glu Lys His Ser Lys
65   70   75   80
Asp Glu Ile Ile Ser Leu Leu Val Leu Glu Gln Phe Met Ile Gly Gly
                85   90   95
His Cys Asn Asp Lys Ala Ser Val Lys Glu Lys Trp Lys Ser Ser Gly
            100   105   110
Lys Asn Leu Glu Arg Phe Ile Glu Asp Leu Thr Asp Asp Ser Ile Asn
        115   120   125
Pro Pro Ala Leu Val His Val His Met Gln Gly Gln Glu Ala Leu Phe
    130   135   140
Ser Glu Asp Met Pro Leu Arg Asp Val Ile Val His Leu Thr Lys Gln
145   150   155   160
Val Asn Ala Gln Thr Thr Arg Glu Ala Asn Met Gly Thr Pro Ser Gln
                165   170   175
Thr Ser Gln Asp Thr Ser Leu Glu Thr Gly Gln Gly Tyr Glu Asp Glu
            180   185   190
Gln Asp Gly Trp Asn Ser Ser Ser Lys Thr Thr Arg Val Asn Glu Asn
        195   200   205
Ile Thr Asn Gln Gly Asn Gln Ile Val Ser Leu Ile Ile Ile Gln Glu
    210   215   220
Glu Asn Gly Pro Arg Pro Glu Glu Gly Gly Val Ser Ser Asp Asn Pro
225   230   235   240
Tyr Asn Ser Lys Arg Ala Glu Leu Val Thr Ala Arg Ser Gln Glu Gly
                245   250   255
Ser Ile Asn Gly Ile Thr Phe Gln Gly Val Pro Met Val Met Gly Ala
            260   265   270
Gly Cys Ile Ser Gln Pro Glu Gln Ser Ser Pro Glu Ser Ala Leu Thr
        275   280   285
His Gln Ser Asn Glu Gly Asn Ser Thr Cys Glu Val His Gln Lys Gly
    290   295   300
Ser His Gly Val Gln Lys Ser Tyr Lys Cys Glu Glu Cys Pro Lys Val
305   310   315   320
Phe Lys Tyr Leu Cys His Leu Leu Ala His Gln Arg Arg His Arg Asn
                325   330   335
Glu Arg Pro Phe Val Cys Pro Glu Cys Gln Lys Gly Phe Phe Gln Ile
            340   345   350
Ser Asp Leu Arg Val His Gln Ile Ile His Thr Gly Lys Lys Pro Phe
        355   360   365
Thr Cys Ser Met Cys Lys Lys Ser Phe Ser His Lys Thr Asn Leu Arg
    370   375   380
Ser His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Pro Phe
385   390   395   400
Cys Lys Thr Ser Tyr Arg Gln Ser Ser Thr Tyr His Arg His Met Arg
                405   410   415
Thr His Glu Lys Ile Thr Leu Pro Ser Val Pro Ser Thr Pro Glu Ala
            420   425   430
Ser

<210> 18
<211> 433

<212> PRT
<213> Canis familiaris

<400> 18
Met Ala Ser Asp Ile Arg Ile Ser Phe Gln Gly Glu Pro Ser Met Asn
 1   5   10   15
Asp Pro Gly Ser Glu Asn Leu Glu His Lys Leu Ser Gln Gly Pro Ala
            20   25   30
Ile Gln Glu Glu Asp Glu Ile Tyr Glu Phe Pro Ser Thr Gln Leu Thr
        35   40   45
Leu Leu Gln Asn Ser Asn Ser Ser Ala Arg Gln Glu Leu Gln Asn Leu
    50   55   60
Tyr Lys Leu Phe His Ser Trp Leu Gln Pro Glu Lys His Ser Lys Asp
65   70   75   80
Glu Ile Ile Ser His Leu Val Leu Glu Gln Phe Met Ile Asn Gly His
                85   90   95
Cys Ser Asp Arg Ser Met Leu Lys Lys Lys Trp Asn Ala Ser Gly Arg
            100   105   110
Asn Leu Glu Lys Phe Met Glu Asp Leu Thr Asp Asp Gly Met Lys Leu
        115   120   125
Pro Gly Leu Val His Val His Met Lys Gly Gln Asp Ala Leu Phe Ser
    130   135   140
Glu Asn Met Pro Leu Arg Glu Val Ile Val His Phe Met Lys Gln Leu
145   150   155   160
Ser Ala Gly Thr Pro Thr Glu Glu Asn Met Gly Thr Pro Ser Trp Thr
                165   170   175
Ser Gln Asp Thr Ser Leu Glu Thr Gly Gln Gly Glu Trp Asp Lys Ala
            180   185   190
Asn Gly Tyr Asn Ile Tyr His Asn Asp Gly Thr Thr Ser Gln Gly Asn
        195   200   205
Ala Val Pro Ser Leu Phe Ile Val His Glu Glu Asp Cys Pro His Pro
    210   215   220
Glu Glu Asp Ser Val Ser Leu Lys Asp Leu Leu Ser Pro Gly Arg Pro
225   230   235   240
Gly Leu Gly Thr Ser Asn Ser Gln Glu Gly Cys Leu Gln Gly Arg Pro
                245   250   255
Tyr Gln Asp Val Leu Met Glu Gly Ala Pro Gly Phe His Ser Arg Ser
            260   265   270
Thr Ala Val Thr Pro Asp Pro Val Ser Thr His Gln Lys Thr Glu Gly
        275   280   285
Asn Ser Thr Cys Gly Gly His Gln Glu Arg Phe Arg Asp Ala Gln Asn
    290   295   300
Ser Tyr Arg Cys Glu Lys Cys Pro Arg Ile Phe Arg Tyr Phe Ser Gln
305   310   315   320
Leu Lys Ala His Gln Arg Arg His Asn Asn Glu Arg Thr Phe Ile Cys
                325   330   335
Ala Glu Cys Asn Lys Gly Phe Phe Gln Ala Ser Asp Leu His Val His
            340   345   350
Gln Lys Ile His Thr Glu Glu Lys Pro Phe Arg Cys Ser Thr Cys Glu
        355   360   365
Lys Ser Phe Ser His Lys Thr Asn Leu Leu Ala His Glu Arg Ile His
    370   375   380
Thr Gly Glu Lys Pro Tyr Val Cys Ala Leu Cys Gln Arg Ser Tyr Arg
385   390   395   400
Gln Ser Ser Thr Tyr His Arg His Leu Arg Thr His Gln Lys Ile Ala
                405   410   415
Val Lys Gly Thr Pro Ser Thr Ser Glu Ala Ser Ser Ala Val Ala Ser
            420   425   430
Val

<210> 19
<211> 416
<212> PRT
<213> Bos taurus

<400> 19

```
Met Asp Leu Gly Phe Arg Ala Ser Phe Gln His Glu Pro Ser Asn Glu
 1               5                  10                  15
Asp Pro Lys Ser Ala Asn Thr Gly Phe Ile Pro Ser Arg Gly Pro Thr
            20                  25                  30
Leu Gln Thr Ala Glu Asp Ile Ser Gln Leu Gln Asn Thr Gln Pro Gly
        35                  40                  45
Leu Leu Gln Asn Gly Asn Asn Ser Arg Ala Arg Gln Glu Leu Gln Arg
    50                  55                  60
Leu Tyr Lys Ser Phe His Leu Trp Leu Gln Pro Glu Lys His Ser Lys
65                  70                  75                  80
His Glu Ile Ile Phe Gln Leu Ala Leu Glu Gln Phe Met Ile Asn Lys
                85                  90                  95
His Cys Ser Glu Lys Ser Thr Leu Lys Glu Lys Trp Lys Ala Ser Gly
            100                 105                 110
Gly Asp Leu Glu Lys Phe Thr Glu Asp Leu His Asp Asp Cys Ile Lys
        115                 120                 125
Leu Pro Asp Leu Val His Val His Leu Gln Gly Gln Glu Ala Leu Phe
    130                 135                 140
Ser Glu Asn Met Ser Leu Lys Glu Ile Ile Phe His Leu Thr Asn Gln
145                 150                 155                 160
Leu Ser Thr Gly Gly Val Asn Met Gly Thr Pro Ser Trp Thr Met Gln
                165                 170                 175
Asp Thr Ser Leu Glu Thr Gly Gln Arg Asn Glu Gly Lys Glu Asn Asp
            180                 185                 190
Gly Asn Ile Ser Val Lys Ser Asp Ser Ile Thr Ser Pro Ser Asn Gln
        195                 200                 205
Ile Pro Ser Leu Ile Ile Val Gln Glu Glu Asn His Leu Arg Leu Glu
    210                 215                 220
Glu Gly Gly Val Ser Leu Glu Asn Pro Arg Asn Ser Arg Arg Gly Ala
225                 230                 235                 240
Gly Pro Gly Pro Ser Arg Pro Gln Asp Gly Ser Leu Lys Gly Pro Ser
                245                 250                 255
Ser Gln Asp Val Leu Met Glu Val Glu Arg Asp Gln Val Thr Pro Gly
            260                 265                 270
Pro Val Ser Thr Leu Gln Ser Ser Glu Gly Thr Ser Ala Arg Gly Lys
        275                 280                 285
His Gln Glu Arg Ser Leu Arg Ala Pro Glu Val Tyr Arg Cys Glu Arg
    290                 295                 300
Cys Pro Lys Thr Phe Arg Tyr Ser Ser Arg Phe Arg Val His Gln Lys
305                 310                 315                 320
Arg His Asp Asn Glu Arg Thr Tyr Ile Cys Ala Glu Cys Gly Lys Gly
                325                 330                 335
Phe Phe Gln Ala Ser Asp Leu His Val His Gln Arg Ile His Thr Gly
            340                 345                 350
Glu Lys Pro Phe Val Cys Ser Thr Cys Glu Met Ala Phe Thr His Lys
        355                 360                 365
Thr Asn Leu Arg Ala His Glu Arg Thr His Thr Gly Glu Lys Pro Tyr
    370                 375                 380
Glu Cys Ser Leu Cys Gln Arg Arg Phe Arg Gln Ser Ser Thr Tyr His
385                 390                 395                 400
Arg His Leu Arg Phe His Gln Lys Thr Thr Leu Lys Ser Ala Pro His
                405                 410                 415


<210> 20
<211> 570
<212> PRT
<213> Equus caballus

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

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

<210> 21
<211> 528

<212> DNA
<213> Gorilla gorilla

<220>
<221> misc_feature
<222> 18, 19, 80, 211, 212, 519, 520, 521, 522
<223> n = A,T,C or G

<400> 21
aatggaatca ctttccannng tgtccctatg gtgatgggag cagggtgtat ctctcaacca 60
gagcagtcct cccctgagtn tgcccttacc caccagagca atgagggaaa ctccacatgt 120
gaggtacatc agaaaggatc ccatggagtc cgaaaatcat acaaatgtga agaatgcccc 180
aaggtcttta agtatcactg tcacttatta nntcaccaga gaagacacag gaatgagagg 240
ccatttgttt gtcccgagtg tcaaaaaggc ttcttccaga tatcagacct acgggtgcat 300
cagataattc acacaggaaa gaagcctttc acatgcagca tgtgtaaaaa gtccttcagc 360
cacaaaacca acctgcggtc tcatgagaga atccacacag gagaaaagcc ttatacatgt 420
ccctttttgta agacaagcta ccgccagtca tccacatacc accgccatat gaggactcat 480
gagaaaatta ccctgccaag tgttccctcc acaccagann nntcctaa 528

<210> 22
<211> 1302
<212> DNA
<213> Pan paniscus

<400> 22
atggctttag atctaagaac catatttcag tgtgaaccat ccgagaataa tcttggatca 60
gaaaattcag cgtttcaaca aagccaagga cctgctgttc agagagaaga agggatttct 120
gagttctcaa gaatggtgct caattcattt caagacagca ataattcata tgcaaggcag 180
gaattgcaaa gactttatag gatctttcac tcatggctgc aaccagaaaa gcacagcaag 240
gatgaaatta tttctctatt agtcctggag cagtttatga ttggtggcca ctgcaatgac 300
aaagccggtg tgaaagagaa atggaaatca agtggcaaaa acttggagag attcatagaa 360
gacctgactg atgacagcat aaatccacct gccttagtcc acgtccacat gcagggacag 420
gaagctctct tttctgagga tatgccctta agagatgtca ttgttcatct cacaaaacaa 480
gtgaatgccc aaaccacaag agaagcaaac atggggacac cctcccagac ttcccaagat 540
acttccttag aaacaggaca aggatatgaa gatgaacaag atggctggaa cagttctttg 600
aaaactactc aagtaaatga aaatattact aatcaaggcg atcaaatagt ttccctaatc 660
atcatccagg aagagaacag tcctaggcct gaagagggag gtgtttcttc tgacaaccca 720
tacaactcaa aaagagcaga gctagtcact gctagatctc aggaagggtc cataaatgga 780
atcactttcc aaggtgtccc tatggtgatg ggagcagggt gtatctctca accagagcag 840
tcctcccctg agtctgccct tacccaccag agcaatgagg gaaactccac atgtgaggta 900
catcagaaag gatcccatgg agtccgaaaa tcatacaaat gtgaagaatg ccccaaggtc 960
tttaagtatc tctgtcactt attagctcac cagagaagac acaggaatga gaggccattt 1020
gtttgtcccg agtgtcaaaa aggcttcttc cagatatcag acctacgggt gcatcagata 1080
attcacacag gaaagaagcc tttcacatgc agcatatgta aaaagtcctt cagccacaaa 1140
accaacctgc ggtctcatga gagaatccac acaggagaaa agccttatac atgtcccttt 1200
tgtaagacaa gctaccgcca gtcatccaca taccaccgcc atatgaggac tcatgagaaa 1260
attaccgtgc caagtgttcc ctccacacca gaagcttcct aa 1302

<210> 23
<211> 1302
<212> DNA
<213> Bornean orangutan

<400> 23
atggctttag atctaagaac catatttcag tgtgaaccat ccgagaataa tcttggatca 60
gaaaattcag agtttcgaca aagccaagga cctgctgttc agagagaaga agggatttct 120
gagttctcaa gaatggtgct caattcattt caagacagca ataattcata tgcaaggcag 180
gaattgcaga gactttatag gatctttcac tcatggctgc aaccagaaaa gcacagcaag 240
gatgaaatta tttctctatt agtcctggag cagtttatga ttggtggcca ctgcaatgac 300
aaagccagtg tgaaagagaa atggaaatca agtggcaaaa acttggagag attcatggaa 360
gacctgactg atgacagcat aaatccacct gccttagtcc atgtccacat gcagggacag 420
gaagctctct tttctgagga tatgccctta aaagatgtca ttgttcatct cacaaaacaa 480
gtgtctgccc aaaccccaag agaagcaaat atggggacac cctcccagac ttcccaagat 540
acttccttag aaacaggaga aggatgtgaa gatgaacaag atggctgcaa cagttctttg 600
aaaactactc aagtaaatga aaatattact aatcaaggca atcaaatagt ttccctaatc 660
atcatccagg aagagaacgg tcctaggtct gaagagggag gtgtttcttc tgacaatcca 720
aacaactcaa aaagagcaga gctagtcact gctagatctc aggaagggtc cataaacgga 780
atcacttttc aaggtgtccc tatggagatg ggagcagggt gtatctctca gccagagcag 840

tcctcccctg agtctgccct tacccaccag agcaatgagg gaaactccac atgtgaggta 900
catcagaaag gatcccatgg agtccgaaaa tcctacaaat gtgaagaatg ccctaaggtc 960
tttaagtatc tctgtcactt attagctcac cagagaagac acaggaatga gaggccattt 1020
gtttgtcccg agtgtcaaaa aggcttcttc cagatatcag acctacgcgt gcatcagata 1080
attcacacag gaaagaagcc tttcacatgc agcatgtgtg aaaagtcctt cagccacaaa 1140
accaacctgc ggtctcatga gagaatccac acaggagaaa agccttatac atgtcccttt 1200
tgtaagacaa gctaccgcca gtcatccaca taccaccgcc atatgaggac tcatgagaaa 1260
attaccccgc caagtgttcc ctccacacca gaagcttcct aa 1302

<210> 24
<211> 1640
<212> DNA
<213> Pongo abelii

<400> 24
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tgaaccatcc gagaataatc ttggatcaga aaattcagag tttcgacaaa gccaaggacc 180
tgctgttcag agagaagaag ggatttctga gttctcaaga atggtgctca attcatttca 240
agacagcaat aattcatatg caaggcagga attgcagaga ctttatagga tctttcactc 300
atggctgcaa ccagaaaagc acagcaagga tgaaattatt tctctattag tcctggagca 360
gtttatgatt ggtggccact gcaatgacaa agccagtgtg aaagagaaat ggaaatcaag 420
tggcaaaaac ttggagagat tcatggaaga cctgactgat gacagcataa atccacctgc 480
cttagtccat gtccacatgc agggacagga agctctcttt tctgaggata tgcccttaaa 540
agatgtcatt gttcatctca caaaacaagt gtctgcccaa accccaagag aagcaaatat 600
ggggacaccc tcccagactt cccaagatac ttccttagaa acaggagaag gatgtgaaga 660
tgaacaagat ggctgcaaca gttctttgaa aactactcaa gtaaatgaaa atattactaa 720

gaagcgcaga acagctatcg ctgcgaaaaa tgcccgaaaa tttttcgcta ttttagccag 960
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<210> 26
<211> 1317
<212> DNA
<213> Artificial Sequence

<220>
<223> Reverse translation of SEQ ID NO: 36

<400> 26
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gaatttccga acacccgcct gagcctgttt cagaacagca gcaacagctt tgcgcgccgc 180
gaactgcagc gcctgtataa cctgtttcat agctggctgc agccggaaaa acgcagcaaa 240
gatgaaatga ttagctgcct ggtgctggaa cagtttgtga ttaacggcca ttgcagcgat 300
cgcagcaccc tgcaggaaaa atggaacgcg agcggccgca acctggaaaa atttatggaa 360
gatctgaccg atgatggcat gaaacagccg ggctttgtgc atgtgcatat gcagggccag 420
gaagcgctgt ttagcgaaaa catgccgctg cgcgaagtgc tggtgcattt tcgcaaacat 480
ctggcgaccg cgaccccgcg cggcgaaaac accaaagcgc cgctgtggac cccgcgcgat 540
gcgagcctgg aaaccggcca ggaaagcgaa ggcaaagaat gcggcggcaa caccagccgc 600
aaaacctgcc cggtgaccga aagcctgacc tggcagggca gccagacccc gtttctgctg 660
attattccgg aagaaacctg cccgggcctg gaagaagcgg gcgtgagccc ggaaaacccg 720
ctgggcagcc gcaccgcgga accgggcctg gcggtgagcc aggaaggcag cccggaaggc 780
ccgtttggcg gcgatgtgca tctggaagcg gaaccgggct ttctgagccg cccggatcag 840
gtgaccctgg aaccggtgag cgcgcatccg agcctggaag gcaacccggc gcgcggcaaa 900

accaataaat ttctgttgaa taaatgaatg aatcca 1656

<210> 28
<211> 1299
<212> DNA
<213> Macaca mulatta

<400> 28
atggctttag atctaagaac catatttcag catgaaccat ccgagaataa tcttggatca 60
gaaaattcag agtttcgacg aagtcaagga cctgctgttc agacagaaga agggatttct 120
gagttctcaa gaatgatgct caattcattt caagacagca ataattcata tgcaaggcag 180
gaattgcaaa gactttatag gatctttcac tcatggctgc aaccagaaaa gcacagcaag 240
gatgaaatta tttctctatt agtcctggag cagtttatga ttggtggcca ctgcaatgac 300
aaagccactg tgaaagagaa atggaaatca agtggcaaaa acctggagag attcatggaa 360
gacctgactg atgacatcat aaatccacct gccttagtcc atgtccacat gcagggacag 420
gaagctctct tttctgacaa tatgccctta aaagatgtca ttgttcatct cacaaaacaa 480
gtgtctgcca aaactccaag agaagcaaac atggggacac ccttccagac ttcccaagac 540
acttcctcag aaacaggaca aggacgtgaa gatgaacaag atggctgcaa cagttctttg 600
aaaactactc aagtaaatga aagtaatact aatcaagaca atccaatagt ttctctaatc 660
atccaggaag agaatggccc taggcctaaa gagggaggtg tttcttctga caacccatac 720
aattcaagaa gaacagagct agacactgct agatcccagg aagggtccac gaacggaatt 780
atttttcaag gtgtccctat ggagatggga gcagggttta tctctcagcc agagcagtca 840
tcccctgagt ctgcccctac ccaccagagc aataagggga actccacatg tgaggtacat 900
cagaaaggat cccatggagt ccgaaaatca tacaaatgtg aagaatgccc caaggtcttt 960
aagtatctct gtcacttatt agctcaccag agaagacaca ggaatgagag gccatttgtt 1020
tgtcccaagt gtcaaaaagg cttcttccag atatcagacc tacgtgtgca tcagataatt 1080
cacacaggag agaaaccttt tacatgcagc atgtgtgaaa agtccttcag ccacaaaacc 1140

ggcaacaccg aatttcgccg cacccagggc agcgcggtgc agaacggcga aatttttagc 120
gaatttagca gcagccagct gaacagcctg ccggataacg gcaacagcaa cgcgcgcaaa 180
gaactgcagc gcctgcatgg cattttcat agctggctgc agccggaaaa acatagcaaa 240
gatgaaatta ttagccgcct ggtgctggaa cagtttatga ttaacggcaa ctgccgcgat 300
cgcagcattc tgaaagaaaa atgggaaagc agcggccgca acctggaaaa actgatggaa 360
gatctgaccg atgattgcat ggaaccgccg gtgctggtgc gcgtgcatat gcagggccag 420
gaagcgctgt ttagcgaaaa catgccgctg aaagaagtga ttgtgcatct gaaaaaacag 480
ctgagcgcgg aaaacaccac cggcgaaaac aaaggcatga gcctgcaggc gccgcaggat 540
accccgctgg aaacccgcca gggcaacgaa gataaagaaa acgcgtgcaa caacttttgg 600
aaaaacaccc aggtggatga tagcattacc tgccagggca cccagacccc gagcctgctg 660
attattcagg aagatcattg cctgcgcctg gaagatggcg gcgcgagctg cgaaaacccg 720
cataacagcc gccgcggcgt gaccagccat agcgaaaaag gcccgctgga aggcccgagc 780
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agcgaatttg tgccggcgca tcagagcaac aaaggcgata gcacctgcgg cggccatcat 900
gaaaaatatc gcggcgcgca gaaaagctat aaatgcaaag aatgcccgaa aatttttcgc 960
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<210> 31
<211> 175
<212> PRT
<213> Gorilla gorilla

<220>
<221> VARIANT
<222> 6, 7, 27, 71, 173, 174
<223> Xaa = Any Amino Acid

<400> 31
Asn Gly Ile Thr Phe Xaa Xaa Val Pro Met Val Met Gly Ala Gly Cys
 1   5   10   15
Ile Ser Gln Pro Glu Gln Ser Ser Pro Glu Xaa Ala Leu Thr His Gln
            20   25   30
Ser Asn Glu Gly Asn Ser Thr Cys Glu Val His Gln Lys Gly Ser His
        35   40   45
Gly Val Arg Lys Ser Tyr Lys Cys Glu Glu Cys Pro Lys Val Phe Lys
    50   55   60
Tyr His Cys His Leu Leu Xaa His Gln Arg Arg His Arg Asn Glu Arg
65   70   75   80
Pro Phe Val Cys Pro Glu Cys Gln Lys Gly Phe Phe Gln Ile Ser Asp
                85   90   95
Leu Arg Val His Gln Ile Ile His Thr Gly Lys Lys Pro Phe Thr Cys
            100   105   110
Ser Met Cys Lys Lys Ser Phe Ser His Lys Thr Asn Leu Arg Ser His
        115   120   125
Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Pro Phe Cys Lys
    130   135   140
Thr Ser Tyr Arg Gln Ser Ser Thr Tyr His Arg His Met Arg Thr His
145   150   155   160
Glu Lys Ile Thr Leu Pro Ser Val Pro Ser Thr Pro Xaa Xaa Ser
                165   170   175

<210> 32
<211> 433
<212> PRT
<213> Pan paniscus

<400> 32
Met Ala Leu Asp Leu Arg Thr Ile Phe Gln Cys Glu Pro Ser Glu Asn
 1   5   10   15
Asn Leu Gly Ser Glu Asn Ser Ala Phe Gln Gln Ser Gln Gly Pro Ala
            20   25   30
Val Gln Arg Glu Glu Gly Ile Ser Glu Phe Ser Arg Met Val Leu Asn
        35   40   45
Ser Phe Gln Asp Ser Asn Asn Ser Tyr Ala Arg Gln Glu Leu Gln Arg
    50   55   60
Leu Tyr Arg Ile Phe His Ser Trp Leu Gln Pro Glu Lys His Ser Lys
65   70   75   80

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

<210> 33
<211> 433
<212> PRT
<213> Pongo pygmaeus

```
<400> 33
Met Ala Leu Asp Leu Arg Thr Ile Phe Gln Cys Glu Pro Ser Glu Asn
 1               5                  10                  15
Asn Leu Gly Ser Glu Asn Ser Glu Phe Arg Gln Ser Gln Gly Pro Ala
            20                  25                  30
Val Gln Arg Glu Glu Gly Ile Ser Glu Phe Ser Arg Met Val Leu Asn
        35                  40                  45
Ser Phe Gln Asp Ser Asn Asn Ser Tyr Ala Arg Gln Glu Leu Gln Arg
    50                  55                  60
Leu Tyr Arg Ile Phe His Ser Trp Leu Gln Pro Glu Lys His Ser Lys
65                  70                  75                  80
Asp Glu Ile Ile Ser Leu Leu Val Leu Glu Gln Phe Met Ile Gly Gly
                85                  90                  95
His Cys Asn Asp Lys Ala Ser Val Lys Glu Lys Trp Lys Ser Ser Gly
            100                 105                 110
```

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

<210> 34
<211> 433
<212> PRT
<213> Pongo abelii

<400> 34

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

```
Ser Glu Asp Met Pro Leu Lys Asp Val Ile Val His Leu Thr Lys Gln
145                 150                 155                 160
Val Ser Ala Gln Thr Pro Arg Glu Ala Asn Met Gly Thr Pro Ser Gln
                165                 170                 175
Thr Ser Gln Asp Thr Ser Leu Glu Thr Gly Glu Gly Cys Glu Asp Glu
            180                 185                 190
Gln Asp Gly Cys Asn Ser Ser Leu Lys Thr Thr Gln Val Asn Glu Asn
        195                 200                 205
Ile Thr Asn Gln Gly Asn Gln Ile Val Ser Leu Ile Ile Ile Gln Glu
    210                 215                 220
Glu Asn Gly Pro Arg Ser Glu Glu Gly Gly Val Ser Ser Asp Asn Pro
225                 230                 235                 240
Asn Asn Ser Lys Arg Ala Glu Leu Val Thr Ala Arg Ser Gln Glu Gly
                245                 250                 255
Ser Ile Asn Gly Ile Thr Phe Gln Gly Val Pro Met Glu Met Gly Ala
            260                 265                 270
Gly Cys Ile Ser Gln Pro Glu Gln Ser Ser Pro Glu Ser Ala Leu Thr
        275                 280                 285
His Gln Ser Asn Glu Gly Asn Ser Thr Cys Glu Val His Gln Lys Gly
    290                 295                 300
Ser His Gly Val Arg Lys Ser Tyr Lys Cys Glu Glu Cys Pro Lys Val
305                 310                 315                 320
Phe Lys Tyr Leu Cys His Leu Leu Ala His Gln Arg Arg His Arg Asn
                325                 330                 335
Glu Arg Pro Phe Val Cys Pro Glu Cys Gln Lys Gly Phe Phe Gln Ile
            340                 345                 350
Ser Asp Leu Arg Val His Gln Ile Ile His Thr Gly Lys Lys Pro Phe
        355                 360                 365
Thr Cys Ser Met Cys Glu Lys Ser Phe Ser His Lys Thr Asn Leu Arg
    370                 375                 380
Ser His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Pro Phe
385                 390                 395                 400
Cys Lys Thr Ser Tyr Arg Gln Ser Ser Thr Tyr His Arg His Met Arg
                405                 410                 415
Thr His Glu Lys Ile Thr Pro Pro Ser Val Pro Ser Thr Pro Glu Ala
            420                 425                 430
Ser
```

<210> 35
<211> 334
<212> PRT
<213> Ailuropoda melanoleuca

<400> 35

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

```
Asp Thr Ser Leu Glu Thr Gly Gln Gly Glu Trp Gly Lys Lys Glu Asn
            180                 185                 190
Gly Asp Asn Ile Tyr His Ile Asn Asp Ser Ile Thr Ser Gln Gly Asn
        195                 200                 205
Glu Ile Pro Ser Leu Leu Ile Ile Arg Glu Glu Asp Tyr Pro Arg Pro
    210                 215                 220
Glu Glu Asp Ser Val Ser Leu Lys Asn Pro Leu Ser Ser Arg Lys Ala
225                 230                 235                 240
Gly Leu Gly Met Ser Gly Ser Gln Glu Gly Ser Leu Lys Gly Pro Ser
                245                 250                 255
Tyr Gln Asp Val Leu Met Glu Gly Gly Pro Gly Phe Leu Ser Gln Ser
            260                 265                 270
Ile Gln Val Ser Pro Glu Pro Val Pro Thr His Gln Arg Thr Glu Gly
        275                 280                 285
Asn Ser Thr Arg Gly Gly His Gln Glu Arg Cys Arg Glu Ala Gln Asn
    290                 295                 300
Ser Tyr Arg Cys Glu Lys Cys Pro Lys Ile Phe Arg Tyr Phe Ser Gln
305                 310                 315                 320
Leu Lys Ala His Gln Arg Arg His Asn Asn Glu Arg Thr Phe
                325                 330
```

<210> 36
<211> 439
<212> PRT
<213> Sus scrofa

```
<400> 36
Met Asp Leu Asp Leu Arg Leu Ser Phe Gln Gly Glu Pro Ser Arg Asn
 1               5                  10                  15
Asp Pro Gly Ser Glu Asn Leu Ala Leu Lys Ala Ser Gln Gly Tyr Val
            20                  25                  30
Ile Arg Asp Gly Glu Gly Ile Ser Glu Phe Pro Asn Thr Arg Leu Ser
        35                  40                  45
Leu Phe Gln Asn Ser Ser Asn Ser Phe Ala Arg Arg Glu Leu Gln Arg
    50                  55                  60
Leu Tyr Asn Leu Phe His Ser Trp Leu Gln Pro Glu Lys Arg Ser Lys
65                  70                  75                  80
Asp Glu Met Ile Ser Cys Leu Val Leu Glu Gln Phe Val Ile Asn Gly
                85                  90                  95
His Cys Ser Asp Arg Ser Thr Leu Gln Glu Lys Trp Asn Ala Ser Gly
            100                 105                 110
Arg Asn Leu Glu Lys Phe Met Glu Asp Leu Thr Asp Asp Gly Met Lys
        115                 120                 125
Gln Pro Gly Phe Val His Val His Met Gln Gly Gln Glu Ala Leu Phe
    130                 135                 140
Ser Glu Asn Met Pro Leu Arg Glu Val Leu Val His Phe Arg Lys His
145                 150                 155                 160
Leu Ala Thr Ala Thr Pro Arg Gly Glu Asn Thr Lys Ala Pro Leu Trp
                165                 170                 175
Thr Pro Arg Asp Ala Ser Leu Glu Thr Gly Gln Glu Ser Glu Gly Lys
            180                 185                 190
Glu Cys Gly Gly Asn Thr Ser Arg Lys Thr Cys Pro Val Thr Glu Ser
        195                 200                 205
Leu Thr Trp Gln Gly Ser Gln Thr Pro Phe Leu Leu Ile Ile Pro Glu
    210                 215                 220
Glu Thr Cys Pro Gly Leu Glu Glu Ala Gly Val Ser Pro Glu Asn Pro
225                 230                 235                 240
Leu Gly Ser Arg Thr Ala Glu Pro Gly Leu Ala Val Ser Gln Glu Gly
                245                 250                 255
Ser Pro Glu Gly Pro Phe Gly Gly Asp Val His Leu Glu Ala Glu Pro
            260                 265                 270
Gly Phe Leu Ser Arg Pro Asp Gln Val Thr Leu Glu Pro Val Ser Ala
        275                 280                 285
His Pro Ser Leu Glu Gly Asn Pro Ala Arg Gly Lys Ser Pro Glu Gly
    290                 295                 300
Leu Pro Gly Ala Gln Lys Val Phe Pro Cys Glu Lys Cys Ser Gln Val
305                 310                 315                 320
```

```
Phe Arg Tyr Leu Ser Arg Leu Lys Val His Gln Arg Arg His Asn Asp
                325                 330                 335
Glu Arg Pro Phe Val Cys Ala Lys Cys Lys Lys Gly Phe Phe Gln Thr
            340                 345                 350
Ser Asp Leu Arg Val His Gln Arg Ile His Thr Lys Glu Lys Pro Phe
        355                 360                 365
Arg Cys Ser Thr Cys Lys Arg Pro Phe Ser His Lys Thr Asn Leu Arg
    370                 375                 380
Ala His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Leu Cys Ser Leu
385                 390                 395                 400
Cys Gln Arg Arg Tyr Arg Gln Ser Ser Thr Tyr Asn Arg His Leu Lys
                405                 410                 415
Ser His Gln Lys Leu Ala Leu Lys Gly Asp Leu Ser Gly Val Pro Val
            420                 425                 430
Val Ala Gln Arg Lys Arg Ile
        435
```

<210> 37
<211> 433
<212> PRT
<213> Nomascus leucogenys

<400> 37

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

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

<210> 38
<211> 432
<212> PRT
<213> Macaca mulatta

<400> 38

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

```
His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Pro Tyr Cys
385                 390                 395                 400
Lys Arg Ser Tyr Arg Gln Ser Ser Thr Tyr His Arg His Met Arg Thr
                405                 410                 415
His Lys Lys Ile Thr Leu Pro Thr Val Pro Ser Thr Pro Glu Ala Ser
            420                 425                 430


<210> 39
<211> 336
<212> PRT
<213> Cavia porcellus

<400> 39
Met Ala Leu Asp Leu Arg Lys Ser Phe Cys Gln Glu Leu Ser Ser Asn
 1               5                  10                  15
Asn Leu Glu Ser Glu Asp Leu Glu Phe Ser Ser Thr Gln Gly Phe Ala
            20                  25                  30
Val Pro Lys Arg Glu Ile Ser Ala Phe Ser Ser Ile Gln Leu Asn Ser
        35                  40                  45
Leu Gln Tyr Ser Asp Asn Ser Glu Ala Arg Lys Glu Leu Gln Arg Leu
    50                  55                  60
Tyr Glu Phe Phe His Ser Trp Leu Gln Pro Glu Asn His Ser Lys Asp
65                  70                  75                  80
Gln Ile Ile Ala Gln Leu Ala Met Glu Gln Phe Met Leu Ser Gly Arg
                85                  90                  95
Cys Arg Asp Lys Ser Ile Leu Lys Lys Lys Trp Glu Ser Ser Gly Lys
            100                 105                 110
Asn Leu Glu Lys Leu Leu Glu Asp Leu Thr Asp Asp Cys Met Lys Pro
        115                 120                 125
Pro Val Leu Val His Val Cys Met Gln Gly Gln Glu Ala Leu Phe Ser
    130                 135                 140
Glu Asp Met Pro Leu Lys Glu Val Ile Ala His Leu Thr Lys Gln Ser
145                 150                 155                 160
Ser Ala Lys Thr Phe Thr Ala Gly Met Gly Thr Ala His Gln Val Ser
                165                 170                 175
Gln Asn Ala Pro Leu Gly Thr Arg Gln Gly Asn Glu His Glu Glu Asp
            180                 185                 190
Gly Cys Thr Ser Ser Trp Glu Val Thr Gln Val Asn Asp Tyr Ile Thr
        195                 200                 205
Asn Pro Gly Lys Glu Ile Val Ser Leu Leu Ile Ile Pro Glu Ala Asn
    210                 215                 220
Asp Pro Thr Pro Val Glu Glu Ser Ala Ser Trp Glu Asn Thr His Ser
225                 230                 235                 240
Ser Arg Lys Ala Arg Pro Val Ile Cys Gly Leu Gln Glu Glu Ser Gln
                245                 250                 255
Lys Gly Pro Ser Tyr Gln Asp Val Pro Met Asp Val Gly Pro Gly Ser
            260                 265                 270
Ser Ser Leu Pro His Gln Ser Ser Ser Glu Pro Val Ser Asn His His
        275                 280                 285
Cys Ser Glu Gly Asn Ser Ala Cys Glu Glu Ser Gln Glu Arg Phe His
    290                 295                 300
Glu Ser Pro Lys Ser Tyr Lys Cys Glu Glu Cys Pro Lys Thr Phe Lys
305                 310                 315                 320
Tyr Leu Ser His Phe Leu Ala His Gln Arg Cys His Arg Ser Phe Arg
                325                 330                 335


<210> 40
<211> 330
<212> PRT
<213> Spermophilus tridecemlineatus

<400> 40
Met Pro Ser Asn Leu Thr Asn Ser Cys Gln Cys Lys Thr Ser Gln Asn
 1               5                  10                  15
Asp Phe Glu Leu Gly Asn Thr Glu Phe Arg Arg Thr Gln Gly Ser Ala
            20                  25                  30
```

```
Val Gln Asn Gly Glu Ile Phe Ser Glu Phe Ser Ser Ser Gln Leu Asn
        35                  40                  45
Ser Leu Pro Asp Asn Gly Asn Ser Asn Ala Arg Lys Glu Leu Gln Arg
    50                  55                  60
Leu His Gly Ile Phe His Ser Trp Leu Gln Pro Glu Lys His Ser Lys
65                  70                  75                  80
Asp Glu Ile Ile Ser Arg Leu Val Leu Glu Gln Phe Met Ile Asn Gly
                85                  90                  95
Asn Cys Arg Asp Arg Ser Ile Leu Lys Glu Lys Trp Glu Ser Ser Gly
            100                 105                 110
Arg Asn Leu Glu Lys Leu Met Glu Asp Leu Thr Asp Asp Cys Met Glu
        115                 120                 125
Pro Pro Val Leu Val Arg Val His Met Gln Gly Gln Glu Ala Leu Phe
    130                 135                 140
Ser Glu Asn Met Pro Leu Lys Glu Val Ile Val His Leu Lys Lys Gln
145                 150                 155                 160
Leu Ser Ala Glu Asn Thr Thr Gly Glu Asn Lys Gly Met Ser Leu Gln
                165                 170                 175
Ala Pro Gln Asp Thr Pro Leu Glu Thr Arg Gln Gly Asn Glu Asp Lys
            180                 185                 190
Glu Asn Ala Cys Asn Asn Phe Trp Lys Asn Thr Gln Val Asp Asp Ser
        195                 200                 205
Ile Thr Cys Gln Gly Thr Gln Thr Pro Ser Leu Leu Ile Ile Gln Glu
    210                 215                 220
Asp His Cys Leu Arg Leu Glu Asp Gly Gly Ala Ser Cys Glu Asn Pro
225                 230                 235                 240
His Asn Ser Arg Arg Gly Val Thr Ser His Ser Glu Lys Gly Pro Leu
                245                 250                 255
Glu Gly Pro Ser Tyr Gln Asn Ile Pro Val Gly Glu Gln Pro Glu Phe
            260                 265                 270
Leu Pro Thr Ser Asp Gln Ser Ser Ser Glu Phe Val Pro Ala His Gln
        275                 280                 285
Ser Asn Lys Gly Asp Ser Thr Cys Gly Gly His His Glu Lys Tyr Arg
    290                 295                 300
Gly Ala Gln Lys Ser Tyr Lys Cys Lys Glu Cys Pro Lys Ile Phe Arg
305                 310                 315                 320
Tyr Leu Cys His Phe Leu Ala His Gln Arg
                325                 330
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<210> 41
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 41
cggtttgttt gggtttgggt ttgggtttgg gtttgggtt 39

<210> 42
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 42
ggcttgcctt acccttaccc ttacccttac ccttaccct 39

<210> 43
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 43
cagcaagtgg gaaggtgtaa tcc 23

<210> 44
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 44
cccattctat catcaacggg tacaa 25